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CRITICAL THINKING, ATTITUDES, AND VALUES IN HIGHER EDUCATION.

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A LONGITUDINAL STUDY WAS CONDUCTED TO DETERMINE STUDENT CHANGE IN CRITICAL THINKING ABILITY, ATTITUDES IN STEREOTYPY, AND VALUE ORIENTATION WHILE IN AN INSTITUTION OF HIGHER EDUCATION. CHANGES THAT OCCURRED WITH RESPECT TO THESE THREE CHARACTERISTICS WERE EXAMINED FROM 1 YEAR TO THE NEXT FOR 4 YEARS. STUDENT BACKGROUNDS, SUBJECT INTERESTS, SCHOLASTIC PERFORMANCE, AND PERSONALITY CHARACTERISTICS WERE ALSO CONSIDERED IN THE STATISTICAL CORRELATIONS OBTAINED. ABOUT 2,750 MALE AND FEMALE STUDENTS COMPRISED THE SAMPLE POPULATION. AN INITIAL STATUS WITH RESPECT TO INDIVIDUAL CHARACTERISTICS LISTED ABOVE WAS FIRST DETERMINED FOR EACH PARTICIPANT AT THE BEGINNING OF HIS FRESHMAN YEAR. COGNITIVE AND AFFECTIVE MEASUREMENTS WERE MADE DURING EACH OF THE FOLLOWING 3 YEARS TO DETERMINE ANY DIFFERENCE IN SOCIO-CULTURAL-EDUCATIONAL-CURRICULAR DEVELOPMENTS. ALL STATISTICAL DIFFERENCES WERE EXAMINED THROUGH VARIANCE AND COVARIANCE ANALYSES. THE MANY FINDINGS SUGGESTED THAT COLLEGES AND UNIVERSITIES NEED TO ADOPT COMPREHENSIVE GUIDANCE PROGRAMS WHICH WOULD HELP STUDENTS TOWARD FREQUENT SELF-EVALUATION AND SELF-APPRAISAL. THEY COULD THUS BECOME MORE OBJECTIVE, SCIENTIFIC, AND RATIONAL IN THEIR APPROACH TO SOLUTIONS OF THEIR PROBLEMS. THIS WOULD ENCOURAGE INTERNAL INITIATION OF CHANGE WHEN NECESSARY, AND WOULD DECREASE THE EMPHASIS ON EXTERNAL INDOCTRINATION. (JH)

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CRITICAL THINKING, ATTITUDES, AND VALUES IN HIGHER EDUCATION

Final Report

of

Cooperative Research Project No. 590

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MICHIGAN STATE UNIVERSITY
East Lansing, Michigan

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CHAPTER I

INTRODUCTION

Brief Statement of the Problem

The major problem of this longitudinal study was to learn the nature and direction of changes from freshman to senior year in the critical thinking ability, in attitudes of stereotypy and dogmatism, and in traditional value orientation of an entering freshman class at Michigan State University. In addition, we were interested in the characteristics of these students in terms of a variety of cognitive and affective variables. We were further interested in the interrelationships among these variables and how they were in turn related to socio-cultural differences among students. Beyond this, the relationship between certain personality characteristics and the level of academic performance was studied, and an effort was made to identify some factors which would indicate what impact certain types of experiences had upon the personality development of a group of college students.

Rationale for Study of the Problem

The study of the personality characteristics of college students, especially the study of attitudes and values, has increased markedly in the past decade. Whether this is due to the hiatus existing in the prediction of scholastic performance by means of cognitive variables or whether it is due to an interest on the part of our institutions of higher learning to provide optimal learning conditions, is a matter of conjecture.

Michigan State University, like many other institutions of higher education, is continuously engaged in research to find out whether its educational program does in fact accomplish its aims. Implied in the

objectives of a college education, regardless of where this education is pursued, are the development of skill in critical thinking and problem solving and the development of such attitudes and values as may be acquired by an understanding of the physical universe, of the methods of science, of social organization and the process of social control, and by a study of man himself. Our colleges and universities are clearly desirous of some behavioral change in their students, whether these changes be in academic skills, knowledge, attitudes, values, beliefs, interests, or ideals.

Assuming that our institutions of higher education are truly dedicated to preparing their students to become effective members of society and are true agencies of education and not merely of propaganda, one might expect that the greater part of college students, sometime in the period from their freshman to senior year, would become better critical thinkers, less stereotypic in their beliefs, and more receptive to new ideas. Further, it would be expected that the students would reexamine their personal values and would reject those found to be in conflict with the conclusions of critical thought and beliefs based on fact rather than distorted stereotypes. Needless to say, some students would undergo changes to a greater degree than others, and some students would not undergo any changes at all. In relation to the aims of the colleges this would be acceptable since no change in the behavior of some students would be deemed as desirable as change in the personality development of other students. In addition, those experiences which have an impact on some students might have total lack of impact upon other students.

Although it is generally agreed that attitudes and values are instilled early in life and are most easily modifiable in infancy and adolescence, curriculum planning at our colleges and universities assumes that the critical thinking ability, attitudes, and values of college students are still modifiable at age eighteen to twenty-two or older.

Research elsewhere shows that college students do undergo some changes in critical thinking ability, attitudes, and values during their college years, with the amount of change varying according to age, sex, institution attended, and personality structure. It was also found that while certain values tend to remain stable, attitudes, on the other hand, are less stable. Some investigators have shown that there is no marked difference among students at different institutions and in different curricula insofar as the degree and direction of change in attitudes and values are concercerned. One researcher, after reviewing the research on attitudes and values of college students over a period of about ten years concluded that "the impetus to change does not come primarily from the formal educational process....the main overall effect of education upon students' values is to bring about general acceptance of a body of standards and attitudes characteristic of college-bred men and women in the American community. There is more homogeneity and greater consistency of values among students at the end of their four years than when they began" (Jacob, 1957). Although one might interpret the results of this ten year span of research as being largely negative and suggestive that college does little, if anything, to promote personality development, a careful appraisal of these findings indicates that something is indeed happening to these students. The mere fact that they are beginning to adopt a behavior pattern characteristic of a certain group is indicative that for some at least, there has been some change in their attitudes, values, and even their critical thinking processes.

Although mere attendance at college does not guarantee that a change in an individual's attitudes and values will occur, and at least one study to date has presented empirical evidence to support this claim, research has shown that from the freshman to senior year, some changes are evident.

Contradictory, and sometimes inconclusive evidence has been presented regarding the impact of college on student attitudes and values. Jacob concluded that neither courses nor curricula, nor instructors have a marked impact on student behavior. Plant showed that insofar as changes in ethnocentrism, dogmatism, and authoritarianism are concerned, those students who attend college for four years do not differ markedly from those who attend for two years or those who do not attend college. Other researchers however, have shown that certain programs or experiences are more effective than others in affecting social values.

For the most part, previous research in this area has been restricted either to one specialized problem area, such as the impact of social science courses on student attitudes on race, or to students at a highly selective college like Vassar or Bennington, or Sarah Lawrence College. Many of the previous studies have also been concerned with limited personality characteristics such as authoritarianism, ethnocentrism, rigidity, or traits measured by the MMPI or the Guilford-Zimmerman Temperament Survey. The numerous studies of college students' values have used, for the most part, the Allport-Vernon-Lindzey "Study of Values" test or Edwards Personal Preference Schedule.

The interrelationships among critical thinking ability, attitudes, and values, and the changes taking place in these traits as a result of four years of college attendance have not been adequately studied for large numbers of students or have focused primarily on a freshman-senior year comparison without considering the changes occurring in the intervening years. Although there have been numerous studies conducted on the attitudes and values of college students, they have been fragmentary in the sense that only one or two measures have been employed. In the last few years, however, considerably more attention has been paid to studying college students' total environmental matrix in

attempting to explain changes in attitudes and values, since "the greatest impact on character occurs as a result of the total campus experiences, especially if the relationship between intellectual training and character is made a real one" (Eddy, 1959). Within the framework of a broader, total environmental study, covering large numbers of students at numerous intervals throughout their four-year college careers, a number of questions deserve further investigation and analysis.

1. What relationship is there between type of experience at college (social or non-academic vs. academic) and an individual's modification of his ability to think critically, his attitudes of stereotypy and dogmatism, and his value orientation? Are social-type experiences more directly related to changes in values than to changes in critical thinking processes and stereotypy or dogmatism? On the other hand, are academic-type experiences more closely related to facilitating or "triggering" change in critical thinking than they are to influencing one's attitudes and values?

2. Does the average college student attach more importance to the academic facilities and experiences or is he more concerned with "getting the most out of college socially"?

3. If changes occur, are these changes related to those experiences which are "structured," that is, structured or controlled in the sense that the university staff plays a significant role in planning these activities, or are the changes related more to those experiences which are of an informal or unstructured variety?

4. Are the students who have changed markedly in their attitudes and values while at college also those students who have been involved to a greater degree in inter-personal types of experiences?

5. Are changes in attitudes, values, and critical thinking process uniform or fairly uniform over the four years of college or are they more pronounced at one period than at another?

6. What relationship, if any, exists between certain selected biographical and demographic variables and the nature of change in attitudes and values?

The broader questions to which this research is addressed are as follows:

1. What changes in attitudes, values, and critical thinking processes and in the relationships among these three types of traits take place while students are at college? Are the attitudes and values held by freshmen markedly different from those they hold as sophomores, juniors, and seniors? What factor/s in the student's personality and in his environment condition the nature and extent of these changes?

2. To what extent do attitudes and values explain withdrawals, change of major, use of the counseling and psychiatric services, and variations in scholastic performance as measured by grades in specific courses or in terms of overall grade-point-average?

3. If changes in attitudes and values do change after one, two, three or four years of college, to what factor/s may these changes be attributed? What part do the controlled experiences play? What part do the uncontrolled experiences (dormitory, fraternity, sorority, informal gatherings) play? What part does the students' cultural background play?

4. Are intellectual differences related to the extent and direction of change in critical thinking processes, in attitudes, and in values?

The problem, the hypotheses studied, and a review of related research will now be considered.

THE PROBLEM

The problem of this study is that of analysing the data pertaining to critical thinking ability, attitudes of stereotypy and dogmatism, and traditional-value orientation (as measured by the instruments to be described in the following chapter) in relation to

1. sex differences.
2. curricular differences.
3. religious differences.
4. withdrawal from and continuance in college.
5. change of major.
6. academic performance.
7. selected biographical and demographic variables.

In addition to this, we will also study the interrelationships among critical thinking ability, attitudes, and values to see whether or not these relationships change from the freshman to senior year.

The direction and degree of change in critical thinking, attitudes, and values will also be studied in relationship to such variables, as sex, religion, curriculum, and so forth. For example, do students in Engineering change in one direction while those in Veterinary Medicine change in an opposite direction? The specific hypotheses formulated and tested will now be considered.

HYPOTHESES TESTED

Although we were cognizant that many testable hypotheses would emerge as the study progressed and even at its completion, the following hypotheses were generated to give direction to the researchers:

1. There is no significant difference in critical thinking ability,

attitudes of stereotypy and dogmatism, and traditional value orientation between males and females and among

a. students majoring in different curricula.

b. Protestants, Roman Catholics, and Jews.

c. students who lived a major portion of their life on a farm, in a village, town, small city, or large city.

d. students whose parents are native or foreign-born.

d. students who plan to receive four years of college education and those who plan to attend graduate or professional school.

f. students who attended a private, parochial, or public high school.

g. students whose fathers and/or mothers completed grade school, high school, college, graduate or professional school.

h. students whose fathers are executives, business owners, white-collar workers, skilled craftsmen, semi-skilled workers, low or unskilled laborers, farm owners, public service workers, or professional personnel (doctor, lawyer, dentist, and so forth).

2. There is no significant relationship between critical thinking ability, attitudes, and values and (a) the grade a student receives from his instructor, (b) the grade this student receives on a common final examination in Communication Skills and Natural Science, and (c) freshman grade-point-average.

3. There is no significant difference in critical thinking ability, attitudes, and values between students who withdraw from college and those who complete their freshman year.

4. There is no signficant interrelationship between critical thinking ability, attitudes, and values. There is no significant relationship between various instruments designed to measure attitudes and values.

5. There is no significant difference between the mean pre-test and post-test scores in critical thinking ability, attitudes, and values.

6. There is no significant difference in critical thinking ability, attitudes and values from the freshman to senior year, from the freshman to sophomore year, from the sophomore to junior year, and from the junior to senior year.

7. There is no significant relationship between critical thinking, attitudes, values, and the grades a student receives (a) from his instructor, and (b) on a common final examination in Social Science and Humanities courses.

8. There is no significant difference in critical thinking ability, attitudes, and values between students who remain in their original choice of major and those who change major while at college.

9. There is no significant relationship between selected biographical and demographic variables and the change in attitudes and values after one, two, or three years of college.

10. There is no significant relationship between certain types of academic and non-academic experiences and changes in attitudes and values.

11. There is no significant difference in the amount of change occurring in critical thinking ability, attitudes, and values during any one of the four-year periods from freshman to senior year.

Additional Hypothesis Studied

In addition to the major hypotheses stated above, one additional hypothesis related to a comparison of critical thinking ability, attitudes, and values among students attending two small church-affiliated colleges and those attending a large state university.

12. There is no significant difference in critical thinking ability, attitudes, and values among students attending two small colleges and those attending a large state university.

REVIEW OF RESEARCH

During the last decade psychologists, sociologists, anthropologists, and educators studied extensively the effect of development, stability, and change of different pedagogical methods on attitudes and values.

That attitudes and values are instilled early in life needs little documentation. Interest has shifted from the study of the chronological develoment of attitudes and values to a consideration of the effect of certain predisposing factors in the individual on that development. In addition, considerable interest has been generated in studying the relationship between scholastic performance and attitudes and values.

The related research to be presented in this section will be concernced primarily with reviewing those studies that bear upon (1) socio-cultural differences in attitudes and values, (2) the relationship between scholastic performance and affective variables, and (3) changes in attitudes and values.

Socio-Cultural Differences In Attitudes and Values

Sociological as well as psychological research has demonstrated that socio-cultural differences in attitudes and values exist. Although, a common value structure appears to be present among students in a given culture, variations exist within and among different cultural groups (Morris, 1958; Hollinshead, 1952; Wayland and Brunner, 1958). Miller (1958) studying value differences among college students from different social classes reported that rural students tend to identify themselves as members with the working class more often than do students from the urban areas.

There have been numerous studies which have indicated a disparity in college attendance among students from the different social classes (Hollinshead, 1952; Berdie, 1954; Berdie et al. 1962). No doubt part of this disparity is the result of the attitude of the different social classes

towards the ultimate value of a college education--children coming from homes where the parents had some college education and valued it highly are more likely to attend college than those coming from homes where the parents have not had any college education. Granted, the factor of economics is operating here--it costs money to attend college and those from the lower social class homes do not always have the means to educate their children. But even if funds were provided outside the family, there would have to be some initiative and interest on the part of lower-class parents to encourage and direct their children toward a college education. Unfortunately, this drive and zeal is lacking for many of the superior high school students studied by Hollinshead (1952) and Berdie (1954) who did not attend college but who could have done so by obtaining a scholarship. Clearly, one of the crucial factors in ascertaining college attendance is family attitude. If college is a family tradition and there is respect for the need for and value of a college education, the child will attend college even if it means considerable sacrifice on the part of the parents. This will explain, in part at least, why we are attracting some students from the lower social class homes.

There have been numerous studies that have shown significant differences in attitudes and values among Protestants, Roman Catholics, and Jews. Spoerl (1952) using the Allport-Vernon-Lindzey "Study of Values Test" concluded that Jewish students score significantly lower than Protestants and Roman Catholics with respect to religious values but score significantly higher than either in respect to aesthetic values and significantly higher than Catholic students in respect to social values. Woodruff (1945) demonstrated that religious experiences have an important effect on the value patterns of young people and concluded that denominations appear to produce diverse effects. He also showed variations within members of the same denomination

which would lead one to question whether differences in attitudes and values are the result of religious differences only or whether there may be an interaction of many factors such as socio-economic status and region (Dukes, 1955). Dukes' thesis that other factors must be considered was supported by Rhodes (1960) who, when studying the relationship between authoritarianism and religious preference of high school seniors concluded that the association between authoritarianism and fundamentalism is not independent of the influence of socio-economic status and rural residence. The difference between fundamentalist and non-fundamentalist subjects tends to decrease as status and urban influences decrease. He also showed greater variation among Protestants than between Protestants and Roman Catholics with respect to authoritarianism.

Socio-cultural differences in attitudes and values have also been studied by studying public and private high school graduates. Prince (1957) found significant differences in mean value scores among students in public, private, and religious high schools. Wilson (1959) studied a group of 165 Harvard seniors (88 public school graduates and 77 private school graduates) and found significant value differences between the two groups. These and other studies appear to support the thesis of McArthur (1960) that public school graduates exemplify the traditional American value orientation, that is, they were found to be more Doing, Man-over-nature, Individual, Equality, and Achievement-oriented than were the private school graduates. On the other hand, the private school graduates were more "executive-oriented." A point of interest to note from many of these studies is that attitude and value differences between public and private high school graduates are not a simple reflection of background characteristics such as religion or socio-economic status.

There is no doubt but that the quality of the relationship existing between the child and his immediate family has an effect upon the types of attitudes and values the child will develop. This is true whether the child is reared on the farm or in the city, whether his father is in the laboring or executive class, or whether the child is reared as a Roman Catholic or Jew. Itkin (1955) tested 400 male and female college students and their parents and found that when the students had favorable parental attitudes, they approved of their parents' supervision whether their parents had dominant or submissive attitudes towards control. Those students who had negative parental attitudes regarded their parents as dominant regardless of their parents' attitudes toward control. Lyle and Levitt (1955) studied the relationship between children's authoritarianism and parental discipline and found that for 215 fifth-graders, authoritarianism was positively related to parental punitiveness. Rose's (1956) data, and that of Wittenborn (1956) and Koch (1956a, 1956b, 1956c) suggested as did the other studies previously noted, that the intimacy of family life is related to the child's attitudes and values.

There is no denying the fact that there are significant socio-cultural differences in attitudes and values. However, social scientists disagree why these differences exist. Kluckhohn (1950) has offered this theory to aid us in our understanding of this phenomenon: the dominant value system is the "official" American "success culture," radiating from a focus somewhere in the lower middle class. Furthermore, "dominant (American) values emphasize the Future as the important time, the Individual as the important person, and Doing as the important aspect of personality. The alternative system relevant to the present problem is one radiating from some point in the Eastern upper class. There the time most valued is the Past, the persons who matter bear a Lineal relation to oneself, and Being is the most valued aspect of the person."

The Relationship Between Personality Characteristics and Scholastic Performance

Of continuing interest to all educators is the study of various student characteristics in relationship to academic performance or learning. Instruction, or dissemination of knowledge, is one of the major responsibilities of any institution of higher learning. Increased understanding of those factors which contribute toward student learning, and of those factors which retard this process has resulted in the improvement of instruction, in the refinement of admission standards, and in the improvement of the counseling services for students.

It has long been recognized that aptitude or intellectual ability plays a major role in learning. Through the years, the majority of predictive studies have concerned themselves with just how well various instruments measuring aptitude have correlated with academic performance. It has long since become obvious, however, that factors besides aptitude complicate the prediction of academic success (Middleton and Guthrie, 1959; Mohandessi and Runkel, 1958; Neel, 1959). Possibly because of the dissatisfaction with the adequacy of cognitive correlates, more attention has been given to the role which attitudes, interests, and other personality syndromes play in learning. Psychologists have pointed out that what one learns is largely conditioned by the prejudices, biases, preconceived notions and convictions of the person who does the learning (Allport, 1955; Rokeach, 1960).

Efforts to determine the relationship between academic performance or scholastic success and such attitudes and values as we are able to measure objectively on personality tests go back only about four decades. Early research findings were contradictory or inconclusive (Garrett, 1949; Harris, 1940; Stagner, 1933). In very recent years, however, a growing number of

studies have reported significant relationships between personality and academic performance (Holland, 1959; Hurley, 1959; Neel, 1959). Whether these later findings are the results of better instruments, more refined techniques, and more sophisticated research designs, or the result of a shift in instructors' expectations and hence a shift in what is involved in academic success is a matter of conjecture.

Middleton and Guthrie (1959) administered a personality test based upon Murray's need system to 14 high achievers and 14 low achievers and by factor analysis were able to isolate five unique personality factors for the high achievers (drives for power, resentment, dependence, social acceptance, and aggression) and four unique factors for the low achievers (pleasure seeking, extroversion, denial of shortcomings, and power). Neel (1959) studied 30 senior medical students who had been given the F-Scale and concluded that there is a significant relationship between authoritarianism and the learning of different types of materials. For example, authoritarian subjects encountered difficulty in assimilating material of a humanitarian nature such as would be found in social science. Although her data suggests that the authoritarian personality might be uncomfortable and even dislike materials of a humanitarian nature, further research is needed. The few studies related to academic performance and stereotypy indicate that the non-sterotypic students tend to receive significantly higher grades in the humanities and social science comprehensive examinations than do stereotypic students (Dressel and Mayhew, 1954). Egner and Obelsky (1957) reported that although non-stereotypic students did better in Humanities and Social Science courses, they did not do as well as stereotypic students in Mathematics and Natural Science courses. Both groups, however, did equally well in the Biological Sciences. The authors concluded that

As one moves from the concrete to the abstract, a

> larger percentage of stereotyped students begins to manifest evidence of frustration, culminating in more frequent academic failure, once their threshold of tolerance has been exceeded.

Hurley (1960) reported that indices of achievement motivation correlate with grade-point-average even after the A.C.E. is "partialled out." Hartnett (1960) found that for females, rigidity and dogmatism is related to grades in Communication Skills, Natural Science, Social Science, and Humanities, but that for males, neither rigidity nor dogmatism is related to scholastic performance. Kelley (1958) showed that students who had higher instructor grades could be described as more compulsive, rigid, conforming, and authoritarian. Similar results were reported by Saupe (1957) who demonstrated a general tendency for instructors to reward stereotypic or conforming behavior to a greater degree than warranted by performance on a reading and/or general academic aptitude test. Research has also shown that instructor grades are, to a considerable extent a reflection of personality traits (Kelley, 1958; Saupe, 1957).

Student approval or preference for a certain teaching method is related to student personality characteristics. Once again, the results of research are ambiguous and contradictory. Whereas the more insecure and dependent students favor a structured program, the more independent students prefer permissive teaching (Dressel and Mayhew, 1954).

Changes In Attitudes and Values

Jacob (1957) after making an exhaustive review of studies on college students' attitudes and values concluded that

> "This study has discovered no specific curricular pattern of general education, no model syllabus for a basic social science course, no pedigree of instructor and no wizardry of instructional method which should be patented for its impact on the values of students....the impetus to change does not come primarily from the formal educational process."

Furthermore, he stated that

> "The main overall effect of higher education upon student values is to bring about general acceptance of a body of standards and attitudes characteristic of college-bred men and women in the American community."

Although one might be inclined to conclude that there are no marked personality changes in college students from their freshman to senior year, this is not the case. With few exceptions, studies on changes in the attitudes, values, interests, and beliefs of college students from their freshman to senior year indicate that there are marked differences between the freshman and senior year. Freedman (1960) reporting upon a longitudinal study underway at Vassar College concluded that there are substantial personality changes between the time the student enters as a freshman and leaves college four years later. Seniors tend to be more mature but less stable; they tend to be less "feminine," they are less authoritarian, more tolerant, and display greater religious liberalism; they demonstrate greater acceptance of intellectual values and greater internal conflict than freshmen. These findings are present not only in longitudinal studies of a group but also in cross-sectional studies...."the same kinds of trends obtain between freshman and senior years."

Nelson (1938) studied freshmen, sophomores, juniors, and seniors at eighteen institutions and reported that freshmen were more homogeneous in attitudes than seniors, and, on the average, freshmen tend to be more conservative than upperclassmen. Freshmen were also more favorably disposed towards religion, more likely to indicate their belief in God, and more likely to indicate that they attended church. Somewhat similar results were reported by Arsenian (1943) who studied males at Springfield College and found some rather marked changes in their religious attitudes, the extent of change varying for students in different majors. Somewhat similar but yet different

results were reported by Newcomb (1943) in his study of Bennington students. Both Newcomb and Arsenian are in agreement that changes take place from the freshman to senior year. (Newcomb reported that students, as a group, tend to become less conservative from their freshman to senior year but as individuals remain quite stable within classes as conservatives or liberals). Whereas Arsenian found choice of major to be related to changes, Newcomb found this is to be only slightly related, with community relationships being more important. At first glance, it would appear that the results are contradictory but this is not the case. Arsenian was studying religious values and Newcomb was studying political attitudes; Arsenian was studying males, Newcomb was studying females. These differences might explain, in part at least, the discrepancy in findings regarding the impact of college experiences. Both, however, are in agreement that changes do take place while students are at college.

Plant (1958) and Webster (1958) although using different populations, concluded that college seniors are less ethnocentric than they were as freshmen. Although this finding regarding ethnocentrism has been corroborated by many other studies, the study of Foster (1961) did not stustantiate a decrease in ethnocentrism with college attendance. In fact, in the latter study, the mean score on the E-Scale was slightly higher (although not statistically significant) at the end of the freshman year than it was at the beginning of the freshman year. It is conceivable, however, that the nature of the population Foster et al. worked with can account for this disparity of findings. (The sample was students at the University of Santa Clara--a Roman Catholic university for men.)

In summary, the results of both longitudinal and cross-sectional studies of college students have demonstrated that significant personality changes

occur between the freshman and senior year. There is very little evidence, however, that any one factor from the multitude of college experiences explains changes in attitudes and values. Changes in personality characteristics during school and college years may be a function of the person's maturity or personality, a function of the times we live in, the direct result of college experiences, or a combination of one or more such factors (Jacob, 1957); Mayhew, 1958; Wagman, 1955).

We adopt only those attitudes and values which will help us achieve desired ends (Kurtz, 1956; Morris, 1957) and which are normally sanctioned by the community in which we live (Dameron, 1955; Hemmings, 1957). In addition, the degree and extent to which attitudes and values are modifiable depends upon the nature of the experience (Smith, 1955), the type of contact (James, 1955; McGuigan, 1958), the personality makeup of the individual (Nelson, 1956), the group's approval of new attitudes (Rosenberg, 1956), and the subject's perception of the outcome (Carlson, 1956; Katz, 1957). Because of the continual interaction of these variables, it is difficult indeed to conclude as did Jacob that neither courses, nor instructors, nor instructional methods have a marked impact upon students' values.

CHAPTER II

DESCRIPTION OF INSTRUMENTS USED, POPULATION STUDIED, AND THE STATISTICAL TOOLS USED TO ANALYSE THE DATA

Since the population studied differed for the various hypotheses investigated but the instrumentation remained relatively constant, especially with the use of the major battery of tests employed in this study, this section will present the description of instruments referred to throughout the whole report.

A number of instruments were employed to measure the students' ability to think critically, his attitudes of stereotypy and dogmatism, his value system, his attitude towards the importance of college, and so forth.

DESCRIPTION OF MAJOR BATTERY

The major battery, that is, those tests administered at both the beginning and the end of the study at Michigan State University and the two small church-affiliated, liberal arts colleges consisted of the Test of Critical Thinking, Form G; the Inventory of Beliefs, Form I; Prince's Differential Values Inventory; Rokeach's Dogmatism Scale; and the College Objectives. In addition, the College Qualifications Test, the MSU Reading Test, and the MSU English Test were administered to only the MSU population.

A Test of Critical Thinking, Form G (CT), was developed by the Cooperative Study of Evaluation in General Education of the American Council on Education. This scale consists of 52 objective-type questions and was designed to measure five abilities thought to be involved in critical thinking: (1) defining a problem, (2) recognizing stated and unstated assumptions, (3) selecting pertinent information, (4) formulating and selecting relevant

hypotheses, and (5) drawing valid conclusions. The reliability of the test is .79. The correlation between the Test of Critical Thinking and a measure of general academic aptitude (CQT) is .60 and between the Test of Critical Thinking and freshman-year grade-point-average is .50. The test-retest reliability is .71. Scores can range from 0-52 (Lehmann and Ikenberry, 1959).

It is readily evident that the Test of Critical Thinking is a relatively stable instrument. In addition, it would appear that this is more a test of ability in the processes involved in critical thinking, than a measure of critical or creative thinking, per se.

The Inventory of Beliefs, Form I (IB), developed by the Cooperative Study of Evalutation in General Education of the American Council on Education was used to measure stereotypic beliefs. The fundamental assumption underlying this instrument is that "the objectives of general education can serve as a base from which may be inferred the model organization characterizing the personalities of those most adaptable to the purposes of general education."

This scale consists of 120 pseudo-rational clichés to which the subject is asked to respond by means of a four-element key: strongly agree, agree, disagree, and strongly disagree. Some examples of items are "The best government is one which governs least," "The worst danger to real Americanism during the last 50 years has come from foreign ideas and agitators."

This instrument explores the students' tendency toward (1) ethnocentrism, (2) ideocentrism, (3) sociocentrism, and (4) egocentrism. The inventory is designed to distinguish students who tend to accept stereotypes and who are dependent and rigid in their attitudes and values from those who are more mature in their viewpoints and who tend to be more adaptable in their beliefs and attitudes. Scores can range from 0-120. A high scorer is thought to be mature, flexible, adaptive, and democratic in his relationships with others;

a low scorer is immature, rigid in outlook, compulsive, and authoritarian in his relationships with others. The reliability coefficients range from .68 to .95 with a median r=.86. The correlation between the Inventory of Beliefs, Form I and (a) the CQT is .30, and (b) freshman GPA is .20. The test-retest reliability is .71 (Lehmann and Ikenberry, 1959).

Rokeach's Dogmatism Scale, Form E (D-Scale), consists of 40 statements with which subjects are asked to agree or disagree along a 6-point continuum. There is no opportunity in this scale to record a neutral position. The score obtained is a measure of general authoritarianism and differs with the California F-Scale which seems to tie authoritarianism with political conservatism, ethnocentrism, and anti-Semitism. According to Rokeach, it is possible to obtain a more accurate picture of the authoritarian personality with his D-Scale than with the F-Scale since the latter scale would classify the authoritarian "leftist" or the relatively unprejudiced authoritarian as non-authoritarian although, in reality, he is authoritarian in his behavior.

High scorers are considered dogmatic and unreceptive to new ideas. Scores can range from 0 - 280. The reliability coefficient is .76 for the sample of 2,746 freshman at Michigan State University. The test-retest reliability is .60. The correlations between the D-Scale and (a) IB is .63 which suggests that both instruments are measuring essentially similar traits but that some measured by one are not measured by the other, (b) CQT is .17, and (c) freshman-year GPA is .15. It would appear that this is a relatively stable instrument which is not influenced by general academic aptitude to a great extent.

Prince's Differential Values Inventory (DVI) measures the subjects' value orientation. According to Spindler (1955), values can be dichotomized as traditional and emergent. Prince combined some of Spindler's categories to

obtain four emergent values: sociability, relativism, present-time orientation, and conformity, and four traditional values: Puritan morality, future-time orientation, individualism, and work-success ethic.

The scale consists of 64 pairs of forced-choice statements. Each pair has a traditional-value item and an emergent-value item. The subject chooses either the traditional-value or emergent-value statement from each of the 64 pairs of statements. Only the traditional-value items are scored and the score places the subject's values along a traditional-emergent value continuum. A high score indicates a leaning toward traditional values--that is, personal respectability, respect for others, feelings of guilt, self-denial and thrift. A high scorer also values hard work as good in itself and necessary for success, places his personal and individual desires equal to or above the desires of the group (in its extreme form this value sanctions egocentricity, expediency, and disregard for other people's rights but in its healthier form sanctions independence and originality), and is oriented towards the future to the extent that present needs are sacrificed or should be sacrificed for future reward and satisfaction. A low socre indicates a leaning toward the emergent end of the value continuum--that is, towards the personal importance of getting along with others and achieving group harmony, an acceptance of morality determined by the group rather than by any particular source, a questioning of all absolutes, a willingness to allow his actions to be governed primarily by the consideration of others, and a sacrifice of future goals for present needs. Using Riesman's classification, one might call the traditional values "inner directed" and the emergent values "outer" or "other directed." The scale yields a total traditional-value score as well as subscores for each of the eight sub-scales. Scores can range from 0 - 64. The reliability of the traditional score is .75. The test-retest reliability of the traditional-

value score is .70. Since the correlation between the DVI and CQT is negligible, we can conclude that the DVI is a relatively reliable instrument which is not influenced by the factor of general academic aptitude.

The College Qualification Test consists of 200 items designed to measure general academic aptitude. The scale has 75 items which measure verbal ability, 75 items which measure general information, and 50 items which measure numerical ability. Separate subscores or a total composite score can be obtained. The test manual reports split-half reliabilities of .97 for males and .96 for females (Bennett et al. 1957). Using the split-half method for the MSU sample (N = 2,746), a reliability coefficient of .93 was obtained.

The MSU Reading Test, a 45-item test which was developed at Michigan State University, measures the subject's ability to comprehend thoughts expressed in reading passages. The reliability for the population being studied is .79.

The College Objectives test was developed by Kidd and others (1954) and consists of 26 objectives or values (10 vocational-oriented and 16 general-education or non-vocational in orientation) to which the subject responds by means of a 3-element key. The subject indicates for each objective whether its achievement is very important, important, or of little or no importance to him. Two scores can be obtained from this instrument--the value the subject attaches to the vocationally-oriented objectives of higher education, and the degree of importance attached to the liberal or general education aspects of a college education.

The instruments described above, with the exception of the Dogmatism Scale, the College Qualification Test, and the MSU Reading Test were administered to all subjects in both the pre- and post-test sessions, the beginning and end of the freshman year, and at the end of the senior year. The Inventory of

Beliefs and the D-Scale were alternated during the freshman, sophomore, and junior year retest sessions but were both administered at the beginning of the freshman year and at the end of the senior year.[1]

Instruments, scales, and questionnaires administered during the interval year retesting sessions or those administered solely for research purposes are termed Minor Battery instruments and will now be considered.

MINOR BATTERY

Experience Inventory I is a 50-item scale developed by the research staff to give some indication of the nature and extent of student involvement or immersion in the campus environment. In addition to the general immersion score (G.I.) which has a possible range of 0 - 30, one can obtain a Social Experience score, an Academic Experience score, and an Interpersonal Interaction score. The last three scores are more valuable for suggesting possible factors that might have implemented or facilitated change than as scores, per se. This scale was administered at the end of the freshman and sophomore years only.

Experience Inventory II is a 263-item inventory developed by the research staff and administered to all subjects in the senior year retesting. The inventory consists of a number of sections--some items require reactions to the objectives of college, some require the subject to appraise the effectiveness of his college experiences, some require the subject's views on a variety of current issues such as nuclear testing, the admission of Red China to the U.N. and so forth. In addition, there are sections which ask the subject to indicate the degree to which he may or may not have changed in

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[1] The end of the four-year period is referred to as the senior year, recognizing that some students have already graduated and others have yet to do so.

his personal and inter-personal views, his attitudes, and his values. There is no total score for this inventory although it might be possible to devise one. However, since greater meaning can be derived from an intensive item analysis of the data, no scoring procedure was developed insofar as this study is concerned.

Allport-Vernon-Lindsey Study of Values is a 45-item test which measures values based upon Spranger's theory of types of man and specifies six types of persons: theoretical, economic, aesthetic, social, political and religious. Since the test employs a forced-choice technique, final scores only reflect the relative intensity of each value and not the absolute strength. Thus, a high score on one value must be compensated for by a lower score elsewhere. Correction figures are applied in an attempt to equalize the popularity of the six values. A final score is obtained for each of the values. This scale was administered to a random sample of the population in the freshman year testing session.

Wesley's Rigidity Scale is a 51-item pencil and paper test of personality rigidity. Items were chosen empirically and rated for degrees of rigidity by five psychologists. Although the test contains 67 items, sixteen of the items are "fillers" and act as anti-acquiescence items or moderator variables. Some of the items are phrased so that a response of true is a measure of personality rigidity, e.g. "I am the last one to give up trying to do a thing," while 11 of the items if answered negatively, e.g. "My interests tend to change quickly" would be indicative of rigidity. Scores range from 0 - 51, the high score being indicative of personality rigidity. This test was also administered to a random sample of the freshman population to study the relationship between rigidity, stereotypy, and dogmatism.

The means, standard deviations, and reliability coefficients for the major battery administered to the freshman population in the fall of 1958 are presented in Table 1.

TABLE 1

Means, Standard Deviations, and Internal Consistency Estimates for the Cognitive and Affective Measures on the Freshman Year Pre-Test (Fall, 1958)

Test	Mean*			S.D.			
	Males	Females	Total	Males	Females	Total	r_{tt}
Inventory of Beliefs	60.86	64.77	63.77	14.08	12.84	13.54	.84
Test of Critical Thinking	31.51	31.29	31.40	7.18	7.18	7.15	.79
DVI-Traditional Values	34.87	33.59	34.15	6.93	6.99	6.98	.75
Future Time	9.32	8.92	9.13	2.74	2.72	2.74	.60
Individualism	8.61	9.02	8.81	2.18	2.04	2.12	.41
Puritan Morality	6.92	7.12	7.02	2.46	2.37	2.42	.51
Work Success	9.02	8.52	9.20	2.76	2.73	2.82	.59
Sociability	8.26	9.20	8.71	2.38	2.40	2.44	.48
Conformity	5.27	5.33	5.30	2.41	2.33	2.37	.48
Relativism	7.70	7.77	7.74	2.63	2.71	2.67	.54
Present Time	8.09	8.04	8.06	2.50	2.42	2.46	.57
Dogmatism Scale	168.19	163.56	165.98	25.36	25.47	25.70	.76
NDT Reading	27.04	28.14	27.57	6.40	6.37	6.41	.79
OQT-Vocabulary	44.17	47.31	45.68	12.04	12.28	12.65	.90
Information	50.85	44.11	47.42	9.64	9.52	10.04	.84
Numerical	32.03	24.30	28.58	10.04	9.50	10.35	.90
Total Score	126.46	116.47	121.70	26.26	24.85	25.95	.93

* $N_{Males} = 1436$

$N_{Females} = 1310$

$N_{Total} = 2746$

As indicated earlier, the populations used at various stages as well as the methodology will be considered separately under specific chapter headings.

CHAPTER III

THE PRELIMINARY STAGE: RESULTS AND DISCUSSION

SOCIO-CULTURAL-CURRICULAR DIFFERENCES IN CRITICAL THINKING ABILITY, ATTITUDES OF STEREOTYPY AND DOGMATISM, AND TRADITIONAL VALUE ORIENTATION

Design of the Study. During the Fall 1958 Orientation Week, a battery of tests was administered to 2,973 freshmen entering Michigan State University. The only restriction imposed on the selection of the study sample was that the students be attending college for the first time and that they be native-born Americans. Usable and complete test data were obtained from 2,746 students (1436 males and 1310 females).

To study differences among the various curricular and socio-economic-cultural groups in the measures used, analysis of variance was used. Analysis of covariance was employed wherever necessary.

Major Findings. A detailed description of the findings are to be found in the preliminary report of research.[2] The major findings are as follows:

1. There are significant differences in attitudes of stereotypy and dogmatism, critical thinking ability, and traditional value orientation among MSU students with different socio-cultural backgrounds, and among students majoring in the different curricula.

   a. Males are significantly more stereotypic in their beliefs, and are more dogmatic and unreceptive to new ideas than females. Whereas females as a group tend to be more emergent-value oriented,

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[2] Lehmann, Irvin J. and Hawberry, Stanley O. Critical Thinking, Attitudes, and Values in Higher Education: A Preliminary Report of Research. East Lansing: Michigan State University, 1959; 125 p.

males are more traditional-value oriented. Females are better readers but males possess more general academic aptitude, especially on the numerical and information subtests of the CQT.

b. Males have a significantly higher mean score on the theoretical, economic, and political scales of the Study of Values Test. Females, on the other hand, score significantly higher in the aesthetic, social, and religious scales.

c. Catholic students, as a group, are more stereotypic and dogmatic than either Protestants or Jewish students. In addition, Roman Catholic students also have a significantly higher mean traditional-value score. Jewish students, on the other hand, are most emergent in their value orientation.

d. The mean scores of students who attended a parochial high school indicate that they are more stereotypic and dogmatic and have higher traditional-value scores than those students who attended either a private or public high school. This is not unexpected when one considers that Roman Catholics are more inclined to attend parochial schools than are Protestants or Jews.

e. Protestant students, as a group, have an attitude and value pattern that lies between those of the Roman Catholics and Jews. Nevertheless, there is a significant difference in critical thinking ability, attitudes, and values of students coming from the different Protestant denominations. For example, within and among Protestants, Presbyterian males and females are least stereotypic while Baptist males and females are most stereotypic; Baptist females are most dogmatic and Lutheran males are most dogmatic; and both Baptist males and females have the highest

traditional-value scores. The "fundamentalist" sects of the Protestant denominations were the most atypical.

f. As a group, females majoring in the non-technical curricula such as the social sciences, humanities, and communication arts, are less stereotypic and less dogmatic than those females in the vocationally-oriented curricula such as home economics and medical technology. On the other hand, females in medical technology and business and public service have the lowest mean traditional-value score. As a group, those males who have not chosen a major, have the lowest mean traditional-value score. While males in physical education and agriculture are most stereotypic, those males in the physical and biological sciences are, as a group, least stereotypic in their beliefs.

g. There is no significant difference in attitudes and values between those students whose parents are foreign-born and those whose parents are native-born. It is conceivable that the reason no differences were found here is that the parents of these students have become acculturated to our way of life. It is also possible, however, that in spite of the impact of the home on attitude and value development, the peer sub-culture plays a significant role and might, in certain cases be more powerful and effective than the home.

h. Males and females with farm backgrounds have higher mean traditional-value scores than those students who come predominantly from an urban or suburban environment. The "urban" group, incidentally, has the highest mean emergent value scores. Whereas there appears to be a relationship between rural-urban back-

ground and one's values for both males and females, this relationship does not exist for both sexes with respect to stereotypic beliefs and dogmatism. Only the attitudes of the males appear to be related to the home background variable--that is, those males coming from the farm are most stereotypic and dogmatic while those males coming from the village or small city are least stereotypic and dogmatic.

i. Students who come from homes where the father is in the "laborer-class" and both parents have only a grade or high school education are more stereotypic and have higher traditional values scores than those students who come from homes where both parents attended college and the father is an executive or professional man. These findings suggest that stereotypic beliefs and prejudices and a system of values that are more oriented toward the traditional values than the emergent are associated with a lower level of education. It is interesting to note that with respect to dogmatism, that the higher the level of education of the father, the less dogmatic the student. It is difficult to explain why the relationship between father's and/or mother's level of education and degree of stereotypy is not of a linear fashion for the males but is so for the females. One might advance the hypothesis of differential reporting, that is, males have a greater tendency to exaggerate than females and hence the discrepancy.

j. For both males and females, there is a significant difference in critical thinking ability, attitudes, and values between those students who plan for less than four years of college, those who

want a bachelor's degree, and those who want to attend professional or graduate school. Not only do the latter exhibit a lesser amount of stereotypy and dogmatism, but they also have higher traditional value scores than the other two groups.

k. Although many of the comparisons already reported might be due to initial differences in general academic aptitude, it is readily evident that this cannot entirely account for the differences found among the various groups in attitudes and values. Although the magnitude of the F-test was lowered in all instances, there was an appreciable difference in mean test scores even after adjustments were made for differences in CQT scores among the sub-groups.

There are significant differences in critical thinking ability, attitudes of stereotypy and dogmatism, and traditional value orientation among the various socio-cultural groups. These findings, as well as those of other studies, support the thesis that although there is a common value structure present, there are variations among and within socio-cultural groups.

Comparisons made between entering freshman classes at Michigan State University with respect to certain socio-cultural factors, indicate that student characteristics are changing--in part because of the larger numbers of high school students attending college and in part because the proportions from the various social classes are changing. Attitudes and values differ among the middle, high, and low social classes (Dameron, 1955) and, since attitudes and values have some of their roots in the home, and since there are significant differences in the degree of stereotypy and dogmatism and in emphasis on the traditional values among religious groups, rural and urban groups, and socio-economic (as measured by father's occupation) groups, to

mention a few, we must recognize that this might explain why students coming to Michigan State today are less stereotypic, less rigid and authoritarian, than their counterparts who attended in the 1950's.

That there are significant differences in the attitudes and values between males and females and among students choosing to major in technical-oriented curricula as compared to liberal-arts programs is evident from this and other studies. The meaning of this for higher education is not too clear at this time. The differences may be relevant to success in these various fields or they may be incidental and transient. The extent and nature of changes in attitudes and values in relation to continuance in, or change of, major fields of study needs additional investigation. The implications for curriculum planning also require consideration of this problem: Should the course content for engineers, or some other curricular group be altered so that more emphasis will be placed on the development of a "more-acceptable" system of values? Is the existing set desirable? Is the whole matter to be regarded as irrelevant to the curriculum and instruction? In any case, college instructors must be cognizant that the attitudes and values of engineers, for example, may be markedly different from those of the social science major. But stereotypy need not be interpreted as indifference; a relativistic moral attitude need not be considered as amoral; and a rather fatalistic (although to some, realistic) outlook should not be confused with a disregard for the future. Differences in attitudes and values of students and of faculty hold the possibility of inducing change in either or both. Coincidence in attitudes of students and teachers augurs reinforcement. Some insight into what these attitudes and values are should precede any efforts to either induce change or to create reinforcement.

THE RELATIONSHIP BETWEEN THE VARIOUS COGNITIVE AND AFFECTIVE VARIABLES

Design of the Study. To study the interrelationship among the Inventory of Beliefs, the Dogmatism Scale, and Wesley's Rigidity Scale, these scales were administered to a random sample of the total population of freshmen during Orientation Week. This sub-sample of 484 students consisted of 224 females and 260 males. Pearson-product-moment correlations were computed and tested for significance.

To study the interrelationship among the subscales of the Differential Values Inventory and the Study of Values Test, another random sample of 453 students, 197 females and 256 males was used. Person-product-moment correlations were calculated and tested for significance.

Findings. The study of the interrelationships among the attitude, value, and cognitive tests used here reveals that:

1. For the total group (both males and females), there is a positive and statistically significant relationship between the measures of stereotypy, dogmatism, and personality rigidity. However, when the data was analyzed separately for the males and females, it was evident that for the females, the relationship between stereotypic beliefs and personality rigidity, although positive is not statistically significant. Why this should be so for the females but not for the males is unclear at this time. What is of interest, however, is that the correlations, although significant, are relatively small and for all practical purposes can be considered negligible.
2. For both males and females, the relationship between the religious scale of the Study of Values test and the four traditional value scales of the Differential Values Inventory is both positive and

significant, while the correlations between the religious scale and each of the four emergent scales are negative and significant. Although there is a positive and significant relationship between the Social Value score of the Study of Values and the Sociability score of the DVI, not all of the other subscales are significantly related even though both instruments are based upon Spranger's typology of man.

3. For the males, there is a significant but negative relationship between the traditional-value score of the DVI and the Economics and Political Value scores of the Study of Values. This would be expected since the latter appear to be emergent-value oriented.
4. For the females, there is a significant but negative correlation between the traditional-value score and the Aesthetic and Political value scores. Although one might have hypothesized a negative relationship between the traditional and political values, one might with equal readiness have hypothesized a positive relationship between the traditional and Aesthetic values.
5. For both the males and females, there is a significant positive relationship between traditional values and dogmatism but not between traditional values and stereotypy. This is most perplexing when one considers that there is a correlation of .63 between the IB and D-Scale. It would appear that findings such as this reinforce the hypothesis that although both attitude scales are measuring a common or general factor, there are some specific factors measured by one but not by the other.
6. Even though the Rigidity Scale is positively correlated with both the IB and the D-Scale, it would appear that the Rigidity scale should not be grouped with the other two attitude measures.

7. For the most part, both the traditional and emergent scales of the DVI are unrelated to measures of stereotypy, dogmatism, and rigidity. Some exceptions should be noted, however. A very small, but statistically significant relationship (for males, females, and the total population) exists between the
   a. Individualism scale of the DVI and both the IB and Test of Critical Thinking.
   b. Relativism scale of the DVI and the IB.
   c. Dogmatism Scale and all the scales of the DVI except Individualism and Conformity. The other three emergent-value scales, viz., Sociability, Relativism, and Present-time orientation are negatively correlated with dogmatism.
   d. Traditional values and dogmatism.
   e. Traditional and emergent values and Wesley's Rigidity Scale. The former are positively related while the latter display a negative relationship.
8. As would be expected, there is a moderately high relationship among the three cognitive tests--the CQT, MSU Reading, and Test of Critical Thinking.
9. For neither males nor females is there a significant relationship between the traditional value score and any of the three cognitive measures used. Although this is also true insofar as the relationship between the traditional value score and IB is concerned, the reverse exists with respect to the D-Scale where we find a significant relationship between traditional values and dogmatism.
10. There is a significant relationship between the attitude and cognitive measures studied.

One of the more interesting and significant findings to emanate from this phase of the study relates to the interrelationship among the various cognitive and affective measures. The findings of this study yield further support to the thesis that measures labelled as "attitude" and/or "values" may be grossly misleading in that they measure markedly different traits or characteristics. Although we found a substantial relationship between our measure of stereotypic beliefs (IB) and dogmatism (D-Scale), some traits involved in one are not involved in the other. This will be evident when one looks at the relationship between these two attitude measures and academic performance. While one instrument might be very discriminating between two groups, the other is not. Although stereotypy and dogmatism are positively* related, neither one appears to be related to a measure of personality rigidity. Similar findings were evident when the two value tests were studied. Attitudes of stereotypy, dogmatism, and rigidity, although all measuring some aspect of rigidity of authoritarianism must be considered separately and not grouped under the rubric "rigidity" or "authoritarianism" else this term would become so broad as to be meaningless.

In the light of this study, we have seen time and time again that not only are there significant sex differences for the measures used, but that while one of the attitude and/or value tests might be significantly related to some variable such as grades for the males, it is not related for the females, and vice versa. This would tend to make a strong argument for separate sex norms, separate regression equations for males and females when predictions are to be made, and either separate designs or the incorporation of an interaction term in designs when certain characteristics are being studied.

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* Negative correlations because of reversed scoring procedure.

THE RELATIONSHIP BETWEEN CERTAIN
SELECTED COGNITIVE AND AFFECTIVE VARIABLES AND FRESHMAN
YEAR WITHDRAWAL FROM COLLEGE

Design of the Study. To study the possibility of differentiating among groups of students who complete their freshman year at college and who failed to complete their freshman year, 303 students (176 males and 127 females) who withdrew sometime during their first year were matched with a random sample of 250 students (137 males and 127 females) in terms of sex and first-term grade-point-average. Both groups were than studied to learn whether they could be differentiated in terms of intellectual abilities, a measure of social class,[3] attitudes of stereotypy and dogmatism, and traditional values.

Multiple discriminant analysis was used to test the hypothesis that these two groups of students could be differentiated on the basis of certain variables.[4]

Findings. The analysis of the data yielded three significant discriminant functions and three discriminant functions whose latent roots were found not to be statistically significant at or beyond the .05 level of confidence.

1. The first significant discriminant function was an intellective factor which accounted for over 60 percent of the variance among the groups. Oddly enough, in the first function neither the ID nor the D-Scale, measures of stereotypy and dogmatism respectively, contributed much to the overall variance among the "withdrawal" and "enrollee" groups. It would appear that "examination of the discriminant coefficients of the first discriminant function revealed that the function was a linear combination of intellective elements buttressed by social background and value elements which complemented the cognitive complex." (Ekenberry, 1960).

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[3] A single index was obtained by combining father's occupational prestige rating and level of parental education by means of factor analysis.

[4] Discriminant equations were computed by Stanley O. Ekenberry.

2. The second discriminant function revealed that a socio-cultural factor was operating to a greater extent than either the value measure or the three cognitive measures.

3. The third significant discriminant function suggested that the social background characteristics were most operative but only after removal of the sex and intellectual effects.

Although one could differentiate between a group of withdrawals and a random sample of enrollees in that the withdrawals were less proficient in the reading and general academic aptitude areas, had lower critical thinking scores, were more stereotypic, and came from a lower parental socio-economic-educational level, the findings are not clear-cut. When these students were separated into roughly matched groups on the basis of first-term GPA and sex, the first two discriminant functions, that is the primarily intellective and social-index factors did not differentiate all withdrawal groups from all enrollee groups. It is quite conceivable that some other factor or factors such as motivation, drive, needs, may be more related to persistence or withdrawal from college than are the purely intellectual and social-index factors. Even though the traits measured by the DVI are not a primary factor in any of the three discriminant functions, they contribute modestly in the expected direction. Nevertheless, none of the affective variables appear to be related to college persistence even though there are differences in these traits between the withdrawal and enrollee groups. To say that there are significant differences is <u>not</u> tantamount to concluding that differentiation is possible by means of using these affective measures. It is readily evident that neither the intellectual nor the social-index variables can account for all the dispersion between the groups of enrollees and withdrawals. It is conceivable therefore, that affective measures other than those studied play an important

role in the college education of a student. This latter thesis will be referred to when we consider the relationship between grades and the cognitive and affective measures.

The findings of collegiate persistence and withdrawal support those of previous investigations which have shown that regardless of the influence of other factors such as finances, personality adjustment or maladjustment, marriage, and so forth, intellectual ability, per se, must be considered as the prime factor related to withdrawal from college. Needless to say, those students who have difficulty coping with the academic demands of college will naturally have a higher attrition rate than those students who perform at a satisfactory academic level. It can be granted that some affective variables might be, and are, related to academic performance. But regardless of how the data is analysed, an intellectual factor seems to account for the greatest variation among withdrawal and enrollee groups. Since the cognitive factors account only for part of the variance, this suggests that further research needs to be conducted to isolate those affective variables which play an important role in determining whether or not a student will continue his college education to completion.

THE RELATIONSHIP BETWEEN SELECTED AFFECTIVE AND COGNITIVE VARIABLES AND PERFORMANCE IN NATURAL SCIENCE AND COMMUNICATION SKILLS COURSES

Design of the study. To study the relationship between performance in two general education courses (natural science and communication skills) and measures of stereotypy, dogmatism, traditional values, and critical thinking ability, a random sample of 202 males and 198 females for whom test data were available was used. Pearson-product-moment correlations were computed for the males and females separately. In addition to studying the relationship

between final course grades and selected cognitive and affective measures, separate analyses were performed for the instructor and common final examination grades.[5] This relationship was also studied by ascertaining whether there are significant differences in (1) mean instructor grades and mean examination grades in natural science (NS) and communication skills (CS) and (2) first-term grade-point-average (GPA) between students who are (a) highly stereotypic in their beliefs on the one hand and those who are highly non-stereotypic, (b) highly dogmatic and those who are highly non-dogmatic, (c) have a high regard for the traditional values and those who regard more highly the emergent values, and (d) good and poor critical thinkers. For this latter analysis the upper and lower 25 percent of the total population (1352 males and 1212 females) were employed, the actual numbers being rounded off to 300 in each category for computational ease. A high and low group was selected for each of the affective and cognitive variables considered.[6] Analysis of variance and covariance was used to analyze the data.

To study the contribution of the affective variables to the prediction of scholastic performance, multiple R's were computed.

Findings. The analysis of the data pertaining to the relationship between the affective and cognitive measures and scholastic performance in natural science and communication skills courses reveals some interesting findings:

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[5] In the four general education courses at Michigan State University which all new entering freshmen must take (natural science, communication skills, social science, and humanities) the student receives a grade from his instructor as well as a grade on a common final examination. Each of these contribute 50 per cent to the total or final course grade.

[6] The necessity of having to restrict the eligible population to only those students who completed all three terms of both NS and CS at the end of their freshman year might create some bias in the sample since the inferior students have either withdrawn or are experiencing academic difficulties and have had to repeat some courses instead of following a specified course sequence.

1. There is a small (.10 to .33) positive but significant relationship between stereotypy and the instructor#, the final examination, and the final course grades in both MS and CS for the males and females in the fall and winter terms. This trend is also present for the males in the spring term. However, for the females, the relationship between stereotypy and grades in third term CS is not significant. The data suggest that those students who are less stereotypic tend to receive higher grades from both the instructor and on a common final examination. In nearly all instances, the IB is a better predictor of final examination grades than of instructor grades. It would appear that the flexible, adaptive, non-authoritarian student received higher grades on the common final examination than he received from his instructor. A variety of explanations might be offered to account for this phenomenon: (a) the final examination is more reliable than the instructor grade, (b) the non-stereotypic student is not as conforming and rigid as his stereotypic counterpart--he does not do everything the instructor says with the result that he obtains a lower instructor grade, (c) the non-stereotypic student does better on a common final objective examination because he is a better reader and has a higher CQT score to begin with, and (d) pencil-and-paper tests predict pencil-and-paper tests best.

2. For the males, the relationship between final examination grades in CS and MS and dogmatism is significant for all three terms of the course. As in the case with the IB, the D-Scale is a better predictor of examination grades than of instructor grades. In other words, the dogmatic student, (the one who is rigid and unreceptive to new ideas) receives a lower grade on the common final examination but a higher grade from his instructor. Why this is so is not too clear at this time although the reasons advanced above are also appropriate here.

3. For both males and females, there is a significant relationship between first, second, and third-term GPA and both stereotypy and dogmatism. Although the predictive value of both the ID and D-Scale appears to decrease from the first to the third term for the females, this relationship is not evident insofar as the males are concerned.

4. While the relationship between dogmatism and instructor grade in ME is significant for all three terms, the relationship between dogmatism and instructor grade in CE is not significant. A variety of explanations may be advanced--(1) the instructors in CE and ME are basically different in their personality structure, (2) the criteria used to assign course grades differ in the two departments because of subject matter variations or (3) a combination of these and other factors.

5. The only significant relationship between traditional values and academic performance was for the males in second term CE final examination, and for the females in first term ME.

6. For both the males and females, there is a significant relationship between critical thinking ability and grades received CE, ME, and GPA. A somewhat similar pattern (with few exceptions) is evident for the relationship between grades and both reading ability and general academic aptitude (CQT).

7. Correlations between the various measures of scholastic performance and the cognitive measures are markedly higher than that observed for the relationship between scholastic performance and the affective measures.

8. The CQT is a better predictor of overall general scholastic performance (GPA) than are any of the other cognitive and affective variables.

9. For both males and females, the inclusion of a battery of affective measures resulted in only a slight increase in the magnitude of the multiple R.

The largest increase occurred for the prediction of CS grades for the females while the smallest increase occurred for the ME grades for females. It would appear that for both males and females, attitudes and values play a more prominent role in CS than they do in ME. This, however, is not unexpected when one considers the nature of the two courses--ME is more objective and factual than CS and hence subjective feelings would play little role in ME.

The analysis of the relationship between college freshman year GPA or between grades received from the instructor or on a common final examination in CS and ME and attitudes of stereotypy, dogmatism, traditional values, general academic aptitude and/or specific cognitive abilities yields some implication for educational practices in our colleges and universities. Although the highest correlations are between various measures of ability and aptitude and grades, the relationship between these cognitive variables and academic performance does not exclude the influence of additional factors beyond academic ability and aptitude. In fact, the ability factors could be said to account for a maximum of only about one-half of the total variation in grades. This point has been substantiated by previous research and hence may account for the impetus being placed on research dealing with motivation and needs. It is also readily evident that the predictive power of even the cognitive measures tends to decrease from the first to the third term in the freshman year, and no doubt, from the freshman to senior year. It may be granted that such factors as acceleration and withdrawal might tend to decrease the range of these measures with the result that the correlation coefficients are depressed, but this does not account for the phenomena by itself. For example, for the males, academic aptitude as measured in the fall, accounts for about 35 percent of the variance in grades. But for these same males in the spring, only about 10 percent of the variance in grades is

thus accounted for. Since the range of scores remained the same, it is readily obvious that some other explanation than withdrawals or acceleration must be advanced.

The relationships which were found between attitudes and/or values and college grades indicate that these factors are operative to only a limited extent in determining grades, whether these be instructor grades, common final examination grades, or overall GPA. What is of significance, however, is that the less stereotypic, less dogmatic, and more traditional-value oriented student is somewhat more likely to receive better grades than his opposite in attitude-value pattern structure even after differences in initial academic aptitude have been controlled.

Another point worthy of further mention relates to those unclear patterns between grades and the cognitive and affective measures used in this study. If attitudes and values contribute to success in one course (or with one instructor) but have little influence in another course, and have a negative influence in a third course, group results may be meaningless or at least uninterpretable.

SOME VIEWS AND PERSPECTIVES OF FRESHMEN

After about two weeks of classes, a random sample of 50 freshmen was selected from the total eligible population (N = 2,746) and each was interviewed to obtain his impressions of college life, the value he then placed on a college education, his future plans, and so forth. Following is a summary based upon the interview data collected.

Prior Impressions of College Life

The great majority of students anticipated that college would be extremely demanding academically and thought that they would be required to spend most

of their time studying. They felt that the major emphasis would be placed on the academic facet but after a few weeks (and even after four years as will be seen later in the analysis of senior year data) they realized that they did not have to study as hard as originally anticipated.

Many of the students interviewed had a rather negative image of the college professor before arriving on campus. More specifically, they thought that college professors are "cold, distant, uninterested in students and their problems, strictly intellectual, highly intelligent, old, male, withdrawing, difficult to talk with, difficult to get to know, difficult to understand."

A large number of students expected to find very large classes with the lecture being the most frequent method of instruction. They felt that there would be very little opportunity for class discussion and student-to-student or student-to-faculty interaction. They viewed the classroom as a "formal, cold atmosphere where knowledge is dispensed without regard to the ability of the student."

Some major concerns of the students interviewed (and there is no reason to suggest that these concerns cannot be generalized to the total freshman class) centered upon making friends, being accepted, maintaining individuality, adjusting to campus mores, and performing successfully in their academic pursuits. By and large, academic adjustment was judged by the majority as being the main concern. This concern was manifested in all students regardless of their previous academic achievement in high school.

Most of the students had very little idea or at least no clear-cut ideas regarding social life on campus. True, there were a few who thought that MSU was a "party school" and that college life would be a "breeze....filled with parties and social events," but the majority of students did not share this impression of college life.

Values of a College Education

Students come to college for a variety of reasons, but the more frequent responses (listed in order of frequency) were: to prepare for a vocation; to get away from home; to become independent and learn to assume responsibility for oneself; to do the thing that all their friends were doing upon finishing high school; to obtain a broad understanding of many things; to make lasting friends; to learn to get along with other people; to fulfill the expectations of their parents.

It is readily evident that these students, at least, are vocationally oriented. Although, as it will be seen later on, they recognize the need for a balanced and well-rounded liberal education, this is subordinate to their need to prepare to make a living after graduation. A few students commented that they came to college because it was impossible to obtain a good job with only a high school education. Parenthetically, about one-third of these students stated that they decided to attend college at the time they were in their senior year in high school. About the same number said that they decided when they were high school freshmen, while the other one-third said that they had always known they would be attending college.

Their Future

Although a minority of the students stated that they had no idea as to what they would be doing or how they might be living in 10-15 years, the majority of students had some definite ideas or at least aspirations.

1. The males anticipated an annual income of from $8,000 - $12,000 assuming no inflation. If one recognizes that 10 years from the time of the interviews would be six years after graduation, this is not too unrealistic.

2. The females interviewed hoped that they would be married and would be raising a family of from 4-5 children. Although the males also anticipated

marriage and families, they expected only 3-4 children. The females stated that they hoped they would be prepared to reenter some type of vocation after their children were in school.

3. Most males indicated preference for employment in a large company. They listed such reasons as added security and better facilities.

4. Both males and females implied that they would like to have friends who were similar to them in personality, intelligence, and social class. When asked if racial, ethnic, or color differences were important criteria in choosing friends, the majority felt they would not be.

5. Both males and females planned to participate and take an active role in community activities. However, the analysis of the senior year data does not appear to support this.

6. Both males and females eventually hope to own their own home. With some exceptions, these students were planning to live in a community similar in size and characteristics to their present home community. In the sophomore and junior year interviews reported later, the majority of students did not intend to return to their home community after graduation unless there were extenuating circumstances.

7. When asked where they would like to spend a vacation in 10-15 years, the majority specified travel in the United States, Canada, or Hawaii. Very few aspired to travel in Europe.

CHAPTER IV

CHANGES IN CRITICAL THINKING, ATTITUDES, AND VALUES FROM THE FRESHMAN TO SENIOR YEARS

The material to be presented in this section will consider the changes taking place in critical thinking ability, attitudes of stereotypy and dogmatism, and traditional values during the students' four years at college. Included are not only the changes taking place from the freshman to senior year but also from the freshman to sophomore year, the sophomore to junior year, and the junior to senior year. In addition to changes as measured by the instruments contained in the major battery (IB, CT, DVI, D-Scale), attention will also be given to changes taking place in religious concepts, and in other-factors measured by the Experience Inventory II such as self-perception, interest in current world affairs, tolerance of others and the importance attached to obtaining a college education.

Population studied. Necessarily, the population studied and the instruments used varied from one testing session to another. Although the primary concern was to survey the critical thinking ability, attitudes, and values of the sample at three peak periods--the beginning and end of the freshman year, and at the end of the senior year, we were cognizant of a major limitation of previous research in this area, that is, failure to look at changes occurring within this four-year period. Hence the major battery was administered to random samples of the total population (or a random sample of those who were still enrolled at the time of testing) at the end of the sophomore and junior years. The detailed breakdown of the sample according to time of testing and sex is presented in Table 2.

TABLE 2

Number of Subjects and Instruments
Used at Various Testing Stages

Time of Testing[1]	Number* Males	Females	Tests Used[2]
Fall, 1958	1,436	1,310	CT, IB, DVI, D-Scale, MSU Rdg., CQT given to all Ss. Rigidity Scale and Study of Values administered to random samples
Spring, 1959	1,125	1,094	CT, IB, DVI, EI_1, and the Religious Concepts Inventory
Spring, 1960	197	217	CT, DVI, D-Scale, EI_1, and the Religious Concepts Inventory
Spring, 1961	241	189	CT, IB, DVI, EI_1, and the Religious Concepts Inventory
Spring, 1962	590	461	CT, IB, DVI, D-Scale, EI_2

Note: * These numbers refer to only cases for whom complete, usable test data were available. In the Spring 1960 and Spring 1961 testing sessions which correspond to the sophomore and junior years respectively, an N=500 stratified according to the sex distribution at that time was employed.

[1] The Spring 1960 and Spring 1961 sessions were held during the first two weeks of May while the Spring 1962 session was conducted during the latter part of March and early April.

[2] CT is the American Council on Education Test of Critical Thinking, Form G.
IB is the American Council on Education Inventory of Beliefs, Form I.
DVI is the Differential Values Inventory.
D-Scale is Rokeach's Dogmatism Scale, Form E.
EI_1 is the Experience Inventory administered at the end of the freshman and sophomore years.
EI_2 is the Experience Inventory administered at the end of the senior year.

CHANGES FROM THE FRESHMAN TO SENIOR YEAR

The major hypothesis tested here is that there is no significant difference in the critical thinking processes, attitudes of stereotypy and dogmatism, and traditional value orientation of college students between their freshman and senior year.

Method

The major battery of instruments previously described, with the exception of the Experience Inventory, was administered to all freshmen entering Michigan State University in the fall of 1958 during Orientation Week. Near the end of their senior year, this same battery of cognitive and affective tests, as well as the Experience Inventory, was administered to those students remaining in order to learn what changes had taken place during their four years at Michigan State University. The analysis of data is restricted to those students for whom we have usable pre- and post-test data. The findings and conclusions presented in this section are based upon a sample of 1,051 students (70 percent of the original group still enrolled in college near the end of their senior year or 39 percent of the original group).

The "t"-test for correlated sample means was used to analyze changes in critical thinking, stereotypy, dogmatism, and traditional-value orientation scores for the population from their freshman to senior year.

Findings

The data relative to changes in critical thinking processes, attitudes of stereotypy and dogmatism, and traditional value orientation are presented in Tables 3-7. The data concerning self-perceived changes in attitudes and values are presented in Tables 8 and 9.

Table 3 reveals that for both males and females, there are significant changes in critical thinking ability, attitudes, and values from the freshman

TABLE 3

Means, Standard Deviations, and Tests of Significance for Changes in Critical Thinking Ability, Attitudes, and Values Between Freshman and Senior Years

	MALES (N = 590)							FEMALES (N = 461)						
	Pre-Test		Post-Test					Pre-Test		Post-Test				
Measure	Mean	S.D.	Mean	S.D.	r	t	P	Mean	S.D.	Mean	S.D.	r	t	P
IB	64.77	14.18	73.08	15.10	.61	15.48	<.05	65.99	13.11	78.67	14.91	.60	23.66	<.05
CT	32.82	6.75	39.72	6.11	.63	27.60	<.05	33.07	6.88	39.45	6.60	.70	26.15	<.05
DVI	34.84	7.03	32.38	7.61	.43	37.27	<.05	34.22	6.87	29.60	6.84	.45	13.79	<.05
D-1	166.85	25.61	153.98	22.94	.53	13.21	<.05	162.87	25.14	146.69	24.16	.50	14.07	<.05

TABLE 4

Tests of Significance of Pre- and Post-Test Variances in Attitude and Value Measures

	MALES (N = 590)				FEMALES (N = 461)			
Measure	Pre-Test	Post-Test	t	P	Pre-Test	Post-Test	t	P
IB	14.18	15.10	1.926	ns	13.11	14.91	3.722	<.05
DVI	7.03	7.61	2.140	<.05	6.87	6.84	0.107	ns
D-1	25.61	22.94	3.150	<.05	25.14	24.16	0.984	ns

to senior year. The degree and direction of changes might be summarized as follows:

1. Both males and females received significantly higher scores on the Test of Critical Thinking at the end of four years of college than they did when they entered Michigan State University as freshmen. This would suggest that these students became more proficient in such tasks as the selection of pertinent information, the ability to draw generalizations and make conclusions, and the ability to formulate and select relevant hypotheses. There does not appear to be any evidence that one sex changed more than the other in this trait during the four years of college.

2. Both males and females became less stereotypic in their beliefs from their freshman to senior year. In other words, these students became more flexible, less rigid, and less authoritarian during their four years at college. It would appear that the females underwent a more marked change than the males during this period. Although an Analysis of Covariance was not performed, the fact that there is no significant sex difference initially, but a marked sex difference at the end of the senior year does suggest, at least, that the females changed more than the males. This is indeed difficult to explain in terms of curricular differences but might be more easily explained in terms of student sub-culture differences between the sexes. Females, on the whole, tend to be more oriented to conformity and sociability--to doing things to please others both at the beginning and end of college. In addition, they appear to be more susceptible to outside factors insofar as their behavior is concerned--that is, they tend to be more "outer-or-other-directed" than males. Because of their close attachment to a group, because they are more open-minded and receptive to new ideas than males, it is quite conceivable that they will be influenced or affected to a greater degree than

males by the mores and demands of the peer group. What should be remembered, however, is that the direction of change for both males and females is toward a lessening of stereotypic beliefs and prejudices.

3. Both males and females became less traditional-value oriented from their freshman to senior year. In other words, they became less "inner-directed." They tended to become less absolute in their moral, religious, and ethical beliefs; to have less regard for the "Protestant ethic" of Puritan morality; to become more questioning; and to conform more to peer mores. It is conceivable, of course, that all or most of this initial change might have occurred during the first few months of the freshman year and even during the first few weeks insofar as the students' values are concerned.

4. Both males and females became more open-minded and/or more receptive to new ideas from their freshman to senior year, the females undergoing more marked change than the males.

5. Although Jacob (1958) concluded that college students tend to become more homogeneous in their values from their freshman to senior year, the results of this study as well as those conducted at Vassar (Sanford, 1956), do not appear to completely support this view.

Reference to Table 4 reveals that for the males, there is significantly greater heterogeneity in traditional values (DVI) and significantly more homogeneity in receptivity to new ideas (D-Scale) at the end of the senior year than at the beginning of the freshman year. For the females, there is significantly greater heterogeneity in stereotypic beliefs (IB) after four years of college. In other words, in only one instance, male dogmatism, was there evidence to suggest greater homogeneity of values from the freshman to senior year.

TABLE 5

Means and Standard Deviations for Critical Thinking Ability, Attitudes and Values for Males at Different Stages of College

Measure	Beginning of Freshman Year[2] (N = 590)		End of Freshman Year[2] (N = 590)		End of Sophomore Year[1] (N = 197)		End of Junior Year[1] (N = 235)		End of Senior Year[2] (N = 590)	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
IB	64.77	14.18	67.00	14.68	Not Given		73.68	13.67	73.08	15.10
CT	32.82	6.75	37.51	6.41	39.06	6.04	38.99	6.47	39.72	6.11
DVI	34.84	7.03	33.07	7.53	32.25	7.81	32.47	8.18	32.38	7.61
D-1	166.85	25.61	Not Given		156.31	24.21	Not Given		153.98	22.94

[1] Random sample of eligible population enrolled at time of testing used. Although there might be some slight bias inasmuch as some of the subjects could have withdrawn before their senior year, the number involved are minimal.

[2] Same subjects.

Time of Change

Initially, it would appear from the analysis of pre- and post-test data that significant changes in critical thinking ability, attitudes, and values occurred gradually throughout the students' four years at Michigan State University. This, however, is not the case. For the most part, the greatest magnitude of change occurred during the freshman and sophomore years as is revealed in Tables 5-7. For the changes in value orientation (from traditional to emergent) and critical thinking ability, it would appear that the greatest overall change took place somewhere between the beginning and end of the freshman year. In fact, as will be seen later in the discussion of changes taking place during the junior year, with the exception of changes in stereotypic beliefs, there is a levelling-off or plateau reached insofar as the other measures are concerned. It would also appear that females are more susceptible to early change than are their male counterparts. These findings raise some further questions for further research. What is significant in the freshman and sophomore years? Are students more susceptible to the influence of the student sub-culture and its mores at this time? Have these students been exposed to certain courses and experiences during this period that are conducive to inducing change? Is dormitory living with its interaction of different personalities, beliefs, and interests a partial explanation? Would the same changes (direction and degree) have occurred had the students not attended college?

TABLE 6

Means and Standard Deviations for Critical Thinking Ability, Attitudes, and Values for Females at Different Stages of College

Measure	Beginning of Freshman Year[2] (N = 461)		End of Freshman Year[2] (N = 461)		End of Sophomore Year[1] (N = 217)		End of Junior Year[1] (N = 189)		End of Senior Year[2] (N = 461)	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
IB	65.99	13.11	69.32	14.86	Not Given		75.92	15.51	78.67	14.91
CT	33.07	6.88	37.48	6.53	38.53	6.31	38.96	6.71	39.45	6.60
DVI	34.22	6.87	32.12	7.04	30.27	6.87	29.76	6.52	29.60	6.87
D-1	162.87	25.14	Not Given		151.03	24.04	Not Given		146.69	24.16

[1] Random sample of eligible population enrolled at time of testing used. Although there might be some slight bias inasmuch as some of the subjects could have withdrawn before their senior year, the number involved are minimal.

[2] Same subjects.

TABLE 7

Mean Changes in Critical Thinking Ability, Attitudes and Values for Males and Females at Different Stages of College

Measure	Fall 1958 to Spring 1959	Fall 1958 to Spring 1960	Fall 1958 to Spring 1961	Fall 1958 to Spring 1962
IB	+2.23[1] (+3.33)	-- --	+8.89 (+9.93)	+8.31 (+12.68)
CT	+4.69 (+4.41)	+6.24 (+5.46)	+6.17 (+5.89)	+6.90 (+6.38)
DVI	-1.73 (-2.10)	-2.59 (-3.95)	-2.37 (-4.46)	-2.46 (-4.62)
D-1	-- --	-10.54 (-11.84)	-- --	-12.87 (-16.18)

[1] First set of figures are males, second set in ( ) for females.

Summary and Conclusions

A battery of cognitive and affective measures was administered to a group of 1,051 Michigan State University students at the beginning of their freshman year and then again at the end of their senior year in order to learn what changes had taken place in their critical thinking ability, attitudes of stereotypy and dogmatism, traditional values, and beliefs while at college. The following conclusions seem justified:

1. Both males and females became significantly less stereotypic in their beliefs, the females changing more than the males, from their freshman to senior year.

2. Both males and females had significantly higher critical thinking ability scores at the end of their senior year than at the beginning of the freshman year.

3. From the freshman to senior year both males and females became less traditional-value oriented.

5. In general, the groups did not become more homogeneous in their attitudes and values over the four-year period.

6. For both males and females, the greatest change in critical thinking ability, attitudes, and values took place before the junior year. The changes taking place during the junior and senior years are minimal and of little practical significance.

Self-Perceived Changes

From the analysis of interview and experience inventory data, it is readily evident that these students have undergone a marked change in their self-perception. Reference to Table 8 reveals that when they were seniors, they felt that they were less concerned with attending college for vocational preparation than when they entered as freshmen in 1958. As seniors, they felt strongly concerned with the academic and social aspects of college life as well as the vocational. It should also be noted that the percentage of students who might be described as trying to get by with a minimum effort decreased over the four-year period.

Table 9 contains the responses to a variety of items describing changes (or lack of change) in such areas as tolerance, religion, the value of a college education, and so forth. From this table, one might conclude that:

1. A majority of students have indicated that they have changed in one direction or another in their attitudes, values, opinions, and beliefs, from their freshman to senior year.

2. A small percentage of students have changed in what might be termed a negative direction. For example, some students indicated that they became less tolerant of people differing in race, creed, or color; that they developed less respect for law, rules, and regulations; and that they have a less optimistic outlook for their future.

3. A sizable number of students indicated that they did not think they had undergone any change in the time they were at college. This, incidentally, might be desirable, for lack of change for some people can be considered as being desirable as presence of change for others.

4. Students became more respectful of the views and opinions of other people while they were at college. Although there has not always been a change in their views and opinions with regard to some issues such as desegregation, admittance of Red China to the U.N., or continuation of nuclear testing in the atmosphere, it is readily evident that a sizable portion of the students has developed the ability to listen to the opinions and views of others before drawing any conclusions.

5. In reference to changes in religious values and/or the value or need for religion, it would appear that the data are contradictory since people might change in one but not in the other or vice versa. For example, after four years of college, 394 seniors stated that they became less attached to a religion that they can believe in and defend, while 153 seniors felt that in this period they became more attached; nearly three times as many students (363 versus 132) became less inclined rather than more inclined to accept the Bible as absolute and infallible. Nevertheless, these changes are not accompanied (in direct proportion) by a decrease in the numbers who have less feeling for the need for religion. If the opposite were the case, we should have seen about twice as many of these students feeling less (rather than more) need for religion and this is not so. Actually 35 percent stated that they felt more need for religion versus 26 percent of the sample who felt they have less need.

6. A proportionately larger number of seniors than freshmen rejected the ideas that the major aim of college is to prepare one for a vocation, and felt instead that each student should acquire a liberal education.

7. For many of the students, money was no longer of primary importance.

One of the major faults of many so-called longitudinal studies has been a lack of any periodic study of the original population between the initial and final stages. Although this study does not claim to have considered or circumvented all of the problems involved in longitudinal studies, an attempt has been made to follow up the original group or random samples of it at various stages of their college career. The material to be presented in the next sections will consider in detail those changes in attitudes, values, and critical thinking processes occurring during the freshman year, sophomore year, junior year, and senior year. In addition, the views and perspectives of college students on a variety of political, economic, and social issues will be presented.

TABLE 8

Self Perceived Changes From Freshman To Senior Year

Item	Type and Number Responding W	X	Y	Z
Which of the above (W, X, Y, Z) comes closest to describing the kind of person you consider yourself to be now?	320 (29.1%)	215 (19.6%)	437 (39.8%)	123 (11.2%)
Which of the above is least descriptive of the kind of person you consider yourself to be now?	210 (19.1%)	278 (25.3%)	41 (3.7%)	566 (51.9%)
Which of the above comes closest to describing the kind of person you were when you first came to MSU?	459 (41.9%)	173 (16.0%)	258 (23.1%)	205 (19.0%)
Which of the above comes closest to describing the kind of person you would like to be if you had the choice?	114 (10.4%)	330 (30.0%)	604 (54.9%)	44 (4.0%)

Type:

W - For the most part, this person's primary reason for being in college is to obtain vocational or occupational training.

X - For the most part, this person would consider himself to be someone who is primarily motivated by intellectual curiosity.

Y - For the most part, this person feels that the social life in college is not the most important but is certainly essential for his general development.

Z - For the most part, this person attempts to "make grades" but will rarely go out of his way to do extra or non-assigned readings.

TABLE 9

Self Perceived Changes in Attitudes, Values, and Views from Freshman to Senior Year

In what ways are you different now from what you were as a freshman?	Percentage Responding* More	Less	Same
Tolerance of people differing in race, creed, color, or religion	66 (73)	7 (5)	27 (22)
Respect for the views and opinion of other people	80 (82)	3 (2)	17 (16)
Respect for views and opinions opposite to mine	76 (80)	4 (4)	20 (16)
Tolerance of unconventional dress, behavior, and manners	48 (64)	21 (13)	31 (23)
Insight into the behavior of other people	85 (93)	2 (1)	13 (6)
Ability to get along with other people	73 (73)	3 (3)	24 (24)
Interest in political matters	60 (60)	7 (8)	33 (32)
Interest in social issues	68 (71)	5 (4)	27 (25)
Interest in intellectual and cultural matters	73 (84)	4 (2)	23 (14)
Interest in scientific developments	70 (60)	6 (5)	24 (35)
Interest in world affairs	77 (76)	2 (3)	21 (21)
Ability to adjust to conditions not to my liking	73 (74)	5 (6)	22 (20)
Ability to accept disappointment	64 (67)	5 (4)	31 (29)
Ability to change my views in the presence of facts	80 (78)	1 (2)	19 (20)
Confidence in my ability to deal with new problems	82 (83)	4 (4)	14 (13)
Responsibility for my own behavior	80 (80)	1 (1)	19 (19)
Dependence on class attendance for learning	28 (28)	43 (39)	29 (33)
Feeling that the quality of one's education depends on the institution rather than the individual	13 (10)	63 (67)	24 (23)
Dependence on my age group for behavior patterns	11 (10)	56 (62)	33 (28)
Acceptance of the Bible as a guide to modern living	11 (13)	34 (31)	55 (56)
Attachment to a religious sect or denomination that I can believe in and defend	12 (17)	37 (34)	51 (49)

TABLE 9 (Cont'd)

In what ways are you different now from what you were as a freshman?	Percentage Responding* More	Less	Same
Respect for law	34 (25)	11 (7)	55 (68)
Respect for rules and regulations	28 (18)	23 (27)	49 (55)
Respect for persons in positions of authority	35 (20)	16 (18)	49 (62)
Feeling that money is of primary importance	12 (11)	38 (37)	50 (52)
Desire to accept a job for the satisfaction it has to offer rather than the salary it pays	61 (58)	9 (8)	30 (34)
Drive to get ahead as quickly as possible	50 (27)	14 (24)	36 (49)
Feeling that a major aim of college is to prepare one for a vocation or profession	33 (20)	36 (45)	31 (35)
Feeling that a college should also stress a liberal-arts type of education	66 (68)	9 (6)	25 (26)
Feeling that a college education is necessary to succeed in the world	59 (59)	13 (14)	28 (27)
Importance of grades as measures of achievement	18 (11)	61 (66)	21 (23)
Confusion as to what I want out of life	21 (21)	56 (64)	23 (15)
Optimistic outlook for my future	64 (68)	10 (10)	26 (22)
Pessimistic outlook for my future	8 (8)	67 (71)	25 (21)
Optimistic outlock for future of civilization	45 (39)	20 (29)	35 (32)
Pessimistic outlook for the future of civilization	20 (27)	47 (43)	33 (30)
Feeling of the necessity for religious faith for living in modern times	33 (40)	29 (23)	38 (37)
Commitment to a set of religious beliefs	20 (24)	34 (33)	46 (43)
Awareness of my goals in life	75 (82)	8 (9)	17 (9)

* First set of figures is for males (N=645); figures in parentheses ( ) are for females (N=439).

CHANGES OCCURRING DURING THE FRESHMAN YEAR

The subjects used to investigate the hypothesis that there are significant changes in critical thinking ability, attitudes, and values which occur during one year of college consisted of 2,219 subjects for whom complete, usable test data were available.[7] The analysis of change data is based upon this population rather than on the pre-test and post-test population. Based on those subjects for whom pre-and post-test data are available, changes reported are those occurring in a stable population.

Tables 10 and 11 present data that indicates that the end-of-freshman year respondents are not markedly different from those students who did not participate in the retesting in terms of their initial attitudes and values. Hence, we are able to generalize to the total new freshman population enrolled at MSU in the spring of 1959.

TABLE 10

Differences In Initial IB, CT, DVI and D-Scale Means for Female Spring 1959 Respondents Compared With Spring 1959 Female Non-Respondents

Measure	Respondents (N = 1094) Mean	S.D.	Non-Respondents (N = 41) Mean	S.D.	t	P
IB	65.10	12.93	64.02	10.86	0.613	ns
CT	31.88	6.99	29.58	7.38	1.939	ns
DVI	33.53	6.91	34.49	7.21	0.828	ns
D-SCALE	163.10	25.24	164.46	22.68	0.371	ns

[7] Of the original 2,746 students, 303 withdrew during their freshman year. Hence, of the 2,443 students remaining, the 2,219 students comprise over 91 percent of the eligible population.

TABLE 11

Differences in Initial IB, CT, DVI and D-Scale Means For Spring 1959 Male Respondents Compared With Spring 1959 Male Non-Respondents

	Respondents (N = 1125)		Non-Respondents (N = 104)			
Measure	Mean	S.D.	Mean	S.D.	t	P
IB	63.33	13.90	64.53	13.30	0.873	ns
CT	32.04	6.88	33.00	7.57	1.240	ns
DVI	34.71	6.94	34.76	6.84	0.032	ns
D-SCALE	167.59	24.98	166.96	25.73	0.238	ns

Inasmuch as there were significant sex differences for all the variables except the Test of Critical Thinking, the data were analyzed separately for the males and females. Tests of significance of the difference for correlated means were used to test the hypothesis that changes in these cognitive and affective measures after one year of college are significant.

Table 12 reveals that there were significant differences for both males and females in their ability to think critically, their degree of stereotypy, and in their traditional value orientation. It is also evident that on both the pre- and post-test, males had a higher mean Critical Thinking ability score and were more traditional-value oriented than females, though females tended to be less stereotypic in their beliefs than males. Although there was no significant difference between the sexes in the variance for each of the measures, either on the pre- and post-tests, for both males and females the dispersion in range of scores increased for the IB, and DVI, but decreased slightly on the Test of Critical Thinking during the students' freshman year at college. Recognizing that the withdrawals are not included in the analysis one might have expected to find the groups becoming more homogeneous, but this is not the case here.

For both males and females, the changes were in the direction of students becoming less stereotypic, better critical thinkers, and less traditional-value oriented.

Dealing with an ordinal system of measurement implies the absence of a true zero point and makes any type of change data difficult to interpret. A change of 30-40 is not necessarily the same as a change from 60-70 although both are a change of 10 points. Nevertheless, some tentative conclusions might be advanced, provided the reader is cognizant of these limitations.

1. Although both males and females became less stereotypic in their beliefs during their freshman year, that is, became less authoritarian and rigid, the amount of change for the females was slightly larger than that for the males. However, what is significant here is that with regression towards the mean operating, the males might be expected to undergo change to a more marked degree than females since they had a lower mean score to begin with. This is not the case here. The females are less stereotypic than males to begin with, they are significantly less stereotypic after one year at college, and they appear to change more than the males although this change cannot be tested for significance.

From the foregoing discussion it might appear that females were more susceptible to change than males, and that females, because they are not too set and rigid in their beliefs might undergo more change than males not only in terms of net change but in terms of the numbers changing their attitudes and values. When regression equations were employed to predict spring term, 1959, scores[8] and when these predicted scores were employed to identify those

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[8] The method used to identify changers will be described in greater detail in Chapter 5. See Page 169.

who changed and in what direction, it was seen that there was no marked difference in the number of males and females becoming more or less stereotypic. In other words, sex was not associated with type of change as can be seen in Table 12.

TABLE 12

Type of Change For Males and Females During Freshman Year On The Inventory of Beliefs, Test of Critical Thinking, and Differential Values Inventory

Type of Change[1]	Number of changers Males	Females	X^2
Less stereotypy	71	70	
More stereotypy	72	61	0.392*
Less traditional-value oriented	78	65	
More traditional-value oriented	68	74	1.264

[1] It was assumed that any subject who appeared to become a poorer critical thinker actually did not but that this phenomenon was due to errors of measurement.

* X^2 for ldf = 3.841 at the .05 level of confidence

TABLE 13

Means and Standard Deviations of Inventory of Beliefs, Test of Critical Thinking, and Differential Values Inventory (Traditional Score) for Freshman Year Pre- and Post-Test

	Males (N = 1,125)					Females (N = 1,094)				
	Pre-Test		Post-Test			Pre-Test		Post-Test		
Test	Mean	S.D.	Mean	S.D.	P	Mean	S.D.	Mean	S.D.	P
IB	63.33	13.90	65.75	14.72	<.05	65.10	12.98	68.22	14.44	<.05
CT	32.04	6.88	36.62	6.62	<.05	31.88	6.99	36.12	6.92	<.05
DVI	34.71	6.94	32.84	7.53	<.05	33.53	6.91	31.68	7.11	<.05

Note: Pre-test administered September, 1958
Post-test administered May, 1959

2. Both males and females became less traditional-value oriented during their freshman year at college. In other words, both males and females, after one year at college became more "outer or other" directed and began to attach more importance to a constellation of values embracing such values as a present-time orientation, conformity, relativism, and sociability. Although the changes in each of the subclasses of the DVI were small, the aggregate or total change which is reflected in the traditional value score was large enough to be statistically significant.

These findings are not in the unexpected direction although some might question this. The pre-test is a measure of those values the student brings with him from home while the post-test is a measure of those values which the student brought with him plus those which he might have adopted while at college during his freshman year. Therefore, we might expect to find some change since, for many students, peer groups and the student subculture replace the family and home.[9] Depending upon the types of contacts or experiences the student has, some of his entering values, ideals, beliefs, and aspirations might be strengthened or reinforced while others might be slightly modified or markedly altered.

Once again, there was no relationship between the type of change and sex. Although we are well aware of the fact that the value system of females is markedly different from that of males, there is no typical pattern evident to suggest that one sex changes in one direction while the other sex changes in a different direction.

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[9] The work of Trow (1960), Newcomb (1962) and others suggests that the student subculture plays a very important role in personality development. In addition, the work of Pace and Stern (1958), Astin (1962), and Brown (1962) to mention a few, have also demonstrated how college environments differ. Whether or not the subcultures are related to the college environment is not too important but the fact that they exist and affect students is of importance.

3. For both the males and females there was a significant difference in their pre- and post-test critical thinking scores in the direction of obtaining higher scores at the end of the freshman year. This is to be expected expecially when one realizes that the Test of Critical Thinking is a measure of those factors thought to be involved in the critical thinking process. Inasmuch as these students have all been exposed to one or more courses in natural science which has as its general theme the development of a scientific, rational, and logical method of thinking we would expect an improvement in the critical thinking ability scores of these students. Of all the measures employed in this study, this is the only one for which there was no significant difference between males and females.

Reference to Table 14 indicates that for both males and females, there was significantly greater heterogeneity in their degree of stereotypy after their freshman year at college. For the males, there was also more dispersion in scores on the Differential Values Inventory. Why this was so for the males but not for the females is not clear at this time. Is it possible that the value system for females is more firmly established than that for the males? Could it be that the type of female who withdraws from college before completing her freshman year is not too different in her value system from those females who remain? Questions such as these deserve more intensive study.

For both the males and females, there was no significant decrease in variance on the Test of Critical Thinking during their freshman year at college. This is rather unexpected when on considers that the range of scores (as well as the variance) is probably decreased as a result of the drop-outs. Since those students who withdrew from Michigan State during their freshman year had lower critical thinking ability scores than those

remaining, we would have anticipated that the removal of the withdrawals from the sample would result in greater homogeneity within the group of students still remaining. This is not the case, however.

TABLE 14

Freshman Year Pre- and Post-Test Variances For Males and Females On The Test of Critical Thinking, Inventory of Beliefs, and Differential Values Inventory

	Males (N = 1,125) s^2				Females (N = 1,094) s^2			
Test	Pre-Test	Post-Test	r	t*	Pre-Test	Post-Test	r	t*
IB	193.21	216.64	.74	2.82**	167.18	208.51	.71	5.15**
CT	47.33	43.82	.69	1.76	48.86	47.88	.74	.49
DVI	48.16	56.70	.61	3.48**	47.75	50.55	.60	1.17

* t-test for correlated variances employed.
** Significant at .05 level of confidence

The findings during the first phase of a four-year study, that is the freshman year, indicate that changes did occur in college students' ability to think critically, in their attitudes, and in their value orientation. The changes in Michigan State University students suggest that during this period students improved in some measure in their ability to think critically. During this period some students began to reject certain prejudices and stereotypes and some underwent a shift in their value orientation. For some, the changes were very marked, for others the changes were small, and for still others, there was no evident change. It should be recognized here that there may be a great deal of change in, let stay, stereotypy or traditional values without there being any numerical evidence that this has occurred. Although this is not likely to happen, it is conceivable that for some, the following

occurred: On the pre-test, John Doe responsded to the first 60 items on the IB in a stereotypic fashion and to the last 60 items in a non-stereotypic fashion with the result that he has an IB score of 60. On the post-test, his answers are completely reversed and he still ends up with a score of 60. On the surface it appears that John Doe did not change,[10] and yet he has undergone a great deal of change. This might explain in part why there were so few changes taking place during the freshman year. It is also conceivable that change in some people is as desirable as no change in others. Nevertheless, there are still some questions which remain unanswered, and which deserve further study.

1. Should college personnel be content with the magnitude of change?

2. Are college faculty making the maximum effort to realize changes in attitudes, values, beliefs, and ideals, or should they not be concerned with this dimension of human growth and development?

3. Are the changes which came about the direct result of certain types of experiences (academic and non-academic) unique only to higher education or could they have come about even if the individual did not attend college?[11]

4. Are there certain types of experiences, personality factors, or social characteristics which might be isolated to account for these changes?

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[10] Using regression equations we would also predict that he did not change in stereotypy.

[11] Plant (1962) concluded that college attendance is not associated with changes in the E, F, and D-Scale.

CHANGES IN CRITICAL THINKING ABILITY, ATTITUDES, AND VALUES DURING THE SOPHOMORE YEAR

In the spring of 1960, a random sample of 500 students was selected from those who had entered Michigan State University in 1958 and were still enrolled, and these students were asked to participate in the second phase of the study. Usable, complete test data were available for 217 females and 197 males.

Tables 15 and 16 indicate that the sample of sophomore-year respondents is not markedly different from the non-respondents in terms of their initial critical thinking ability, their attitudes, and their values. Therefore, we are in a position to generalize the findings to the total sample of 500.

TABLE 15

Differences in Initial CT, DVI, and D-Scale Means for Female Respondents in Spring 1960 Compared with Spring 1960 Female Non-Respondents

Measure	Respondents (N = 217)		Non-Respondents (N = 88)			
	Mean	S.D.	Mean	S.D.	t	P
CT	33.20	6.51	31.66	7.16	1.738	ns
DVI	33.94	6.50	33.95	7.21	0.011	ns
D-Scale	160.35	26.64	163.53	26.69	0.969	ns

TABLE 16

Differences in Initial CT, DVI, and D-Scale Means of Spring 1960 Male Respondents Compared with Spring 1960 Male Non-Respondents

Measure	Respondents (N = 197)		Non-Respondents (N = 62)			
	Mean	S.D.	Mean	S.D.	t	P
CT	32.50	6.79	31.53	6.48	1.010	ns
DVI	35.43	6.94	34.11	7.22	1.163	ns
D-Scale	166.94	25.31	167.61	23.10	0.193	ns

Changes durin the sophomore year, although of lesser magnitude, were in the same direction as the changes which have been noted for the freshman year. Tables 17 and 18 indicate that from the spring of 1959 to the spring of 1960,--the sophomore year--students improved in their critical thinking ability, became less rigid and authoritarian, became more receptive to new ideas, and became more emergent in their value orientation.

TABLE 17

Means and Standard Deviations on the Test of Critical Thinking, Differential Values Inventory, and Dogmatism Scale Pre-and-Post Test for Males (N = 197)

Test	Pre-Test*		Post-Test 1		Post-Test 2			
	Mean	S.D.	Mean	S.D.	Mean	S.D.	t**	P
CT	32.50	6.79	37.48	5.79	39.06	6.04	5.267	<.05
DVI	35.43	6.94	33.43	6.80	32.25	7.81	2.660	<.05
D-SCALE	166.94	25.31	Not given		156.31	24.21	8.047	<.05

TABLE 18

Means and Standard Deviations on the Test of Critical Thinking, Differential Values Inventory, and Dogmatism Scale Pre-and-Post Test for Females (N = 217)

Test	Pre-Test*		Post-Test 1		Post-Test 2			
	Mean	S.D.	Mean	S.D.	Mean	S.D.	t**	P
CT	33.20	6.51	37.26	6.00	38.53	6.31	4.205	<.05
DVI	33.94	6.50	31.97	5.85	30.27	6.87	3.864	<.05
D-SCALE	160.35	26.64	Not given		151.03	24.04	5.101	<.05

* Pre-Test is the beginning of the freshman year.
Post-Test 1 is the end of the freshman year.
Post-Test 2 is the end of the sophomore year.

** t-tests computed for differences between Post-Tests 1 and 2.

From Table 7 (see page 58)it is readily evident that the greatest changes (1) in students' ability to think in a rational, scientific, and objective manner; (2) in those things they consider to be important in life; and (3) in their receptivity to new ideas occurred sometime during the freshman and sophomore years. When one looks at changes in dispersion (Tables 17 and 18) it is seen that during the freshman year, these students became more homogeneous in their critical thinking ability and value orientation. However, during the sophomore year, these same students became more heterogeneous in their critical thinking ability and value orientation. From the beginning of the freshman year to the end of the sophomore year, both males and females became more homogeneous in their degree of dogmatism.

Both males and females began to attach less importance to what one might term the "Protestant ethic" of Puritan Morality and began to question the absolutes in life. They also became more hedonistic and felt that they should life for, and enjoy the present rather than be concerned with the future. Rather than be individualists who would do things because they wanted to do them, these students were inclined to be concerned with others and would rather do things with the group. Although they did not become conformists in the true sense, they nevertheless were influenced by peers and the student subculture.

SOME VIEWS AND PERSPECTIVES OF SOPHOMORES

Religious views. During the freshman and the sophomore years especially, there was a great deal of questioning of religious beliefs by these college students. For some students, this questioning was very marked while for others, it did not occur. The part that religion plays in the lives of the students ranges from a complete lack of interest to a sincerity and devoutness that influences every thought and activity of the individual. Admittedly, these

were the extremes. The majority of the students interviewed expressed a belief and a need for religion in their lives. The general concensus was that their pattern of activities had changed since coming to college although their beliefs were basically the same as when they entered as freshmen. Many (except for the Catholic student group) expressed the feeling that the churches in the community did little if anything to encourage religious activity at this time in their lives when this stabilizing force should have been of great value to them. The students consistently maintained that the reason their church activities were less was that they just "don't bother to get up and go to church on Sunday" or that they "can always find a justification for not going in that they have studying or something else that has to be done." At home, they were encouraged and possibly coerced by their parents to attend church regularly; here at school, no one is encouraging them and apparently church is not sufficiently important in their lives for them to attend without this "push."

An interesting point was repeatedly cited by those who are now questioning what religion really is or what part it should be playing in their lives. These students invariably said that their families usually attended religious services together and that no one questioned "if" or "why" they were to attend. Now, these students who have been away from home for two years are beginning to ask, "Why did my parents insist that the family attend church together? What are my parents', or for that matter, my basic beliefs regarding religion? Did we attend church as a family for religious reasons or because it was what the community expected of us as a family? What part does religion play in my life now? What does religion really mean to me?"

A minority of the students interviewed stated that they attended church more regularly at college than they had previously. One student stated that

several fellows in his fraternity house attended the church of the housemother's faith with her because previous to coming to college they had not attended any church. This same student indicated that the satisfaction that came from this experience was as much one of being part of a group as anything at this point. The value of religion for this student at least apparently did not have too much of an impact since he indicated that he could not be sure what effect this experience would have for him in the future.

When students were asked what they considered the most important thing in life, the answers were usually of a materialistic nature such as a job, house, security, and so forth. Only a few answered that religion would rank first. Of course, it is quite possible that many students may accept religion as one of the intangibles of everyone's life without having to mention it. Perhaps those who mentioned religion as being important were from homes where a more ritualistic demonstration of faith is practiced; perhaps their early training included the verbal expression of the place of God in their everyday lives. It is a fact that students who ranked religion high are ones who indicated that the student religious groups on campus are part of their extra-curricular activities.

In the area of religious values, a great deal of empirical research has been gathered to demonstrate that females are more religious value-oriented than males. It has also been shown that although values in general are rather transient, religious values, per se, are most stable.

A random sample of males and females were asked to indicate their definition for each of six selected religious concepts in the fall of 1958 and again in the spring of 1960. The six religious concepts were: The Bible, Prayer, Man, God, Sin, and Eternity. The seven definitions underlying each religious concept were on a relativistic-absolute continuum. Tables 19-24 present the

rank order correlations for males and females for the two testing sessions. It is evident from these tables, that there is more similarity than difference among males and females insofar as their basic religious concepts are concerned. In other words, even though women may be more "religious" value-oriented than males, there is very little difference between the sexes in their basic beliefs.

In the majority of instances, females tended to be more stable in their fundamental religious precepts than males from the time they entered as freshmen until the end of their sophomore year. This would suggest that possibly females have found a set of religious values while males are still searching. However, it should be remembered that both males and females are "shopping around" to find a system that is compatible, the only difference being that males are doing slightly more "shopping" than females.

It is interesting to note that with reference to The Bible, Prayer, Man, and Sin, there is closer agreement between the males and females when they were freshmen than when they were at the end of their sophomore year. This is to be expected when one looks at the rank-order correlations between the sexes for these two periods and sees that the freshman year rho's are much higher than the sophomore year rho's for these particular religious concepts.

Some further points worth mentioning are the following:

1. With the exception of the students' conception of The Bible, both males and females tended to be oriented more towards the absolute belief than to a relativistic belief, both at the beginning of the freshman year and at the end of the sophomore year. This may appear to be contradictory to the finding presented earlier which demonstrated that both males and females became more emergent-value oriented and leaned more heavily to the relativistic

TABLE 19

Rank-Order Correlation for Definition of The Bible for Males and Females Fall 1958 and Spring 1960

Definition	Males (N = 197) Rank F'58	Males (N = 197) Rank Spg.'60	Females (N = 217) Rank F'58	Females (N = 217) Rank Spg.'60	rho* a	rho* b	rho* c	rho* d
1. The Bible is inconsistent, contradictory and exaggerated in value.	6	7	6.5	6				
2. The Bible is a collection of myths.	7	6	6.5	7				
3. The Bible is a great literary work expressing religious philosophy.	3	1	2	2				
4. The Bible is valuable because of its inspirational effect.	5	4	5	5				
5. The Bible is an account of man's experience with God.	4	5	3	4				
6. The Bible is God's revelation written by inspired men.	1	2	1	1				
7. The Bible was dictated by God through the hand of man and is infallible.	2	3	4	3				
					.82	.95	.93	.89

* a = rank order correlation for males for F'58-Spg. '60.
b = rank order correlation for females for F'58-Spg.'60.
c = rank order correlation for F'58 males-females.
d = rank order correlation for S'60 males-females.

TABLE 20

Rank-Order Correlation for Definition of Prayer for Males and Females Fall 1958 and Spring 1960

Definition	Males Rank F'58	Males Rank Spg.'60	Females Rank F'58	Females Rank Spg.'60	rho a	rho b	rho c	rho d
1. Prayer is a direct approach to God which will always bring results if there is enough faith.	3.5	2	3	3				
2. Prayer is communication with God.	1	1	1	1				
3. Prayer is a means of bringing man into a proper relationship with God.	2	3	2	2				
4. Prayer may be communion with God but how it is effected is not understood.	3.5	5	4	4				
5. Prayer is a means of relieving anxiety.	6	4	6	6				
6. Prayer can be equated with strong wishes or desires.	5	6	5	5				
7. Prayer is only a superstitious practice.	7	7	7	7				
					.82	1.00	.99	.83

TABLE 21

Rank-Order Correlations for Definition of Man for Males and Females Fall 1958 and Spring 1960

Definition	Males Rank F'58	Males Rank Spg.'60	Females Rank F'58	Females Rank Spg.'60	rho a	rho b	rho c	rho d
1. Man represents no more than the highest order of evolution.	6	7	7	6				
2. Man is a biological organism with distinctive powers of memory and rational thought.	3	2	4	3				
3. Man is a psychological organism with spiritual needs.	5	4	5	4				
4. The nature and significance of man are not determinable.	7	5	6	5				
5. Man has both a body and a soul with the soul being the more essential.	1	1	2	2				
6. Man is the created object of God's love.	2	3	1	1				
7. Man is a descendant of Adam who was created from the dust of the earth.	4	6	3	7				
					.79	.64	.89	.76

TABLE 22

Rank-Order Correlations for Definition of God for Males and Females Fall 1958 and Spring 1960

Definition	Males Rank F'58	Males Rank Spg.'60	Females Rank F'58	Females Rank Spg.'60	rho a	rho b	rho c	rho d
1. God is our creator and judge who observes every thing that we do.	1	1	1	1				
2. God exists as a divine being.	2	4	2	3.5				
3. God exists as a super-natural power beyond man's comprehension.	3	2	3	3.5				
4. God probably exists but no one knows what he is like.	5	5	6	5				
5. The concept of God is a means of explaining the unknown.	4	3	4	2				
6. God is a projection of man's unconscious mind.	7	6	5	6				
7. There is no supernatural being.	6	7	7	7				
					.86	.85	.89	.94

TABLE 23

Rank-Order Correlations for Definition of Sin for Males and Females Fall 1958 and Spring 1960

Definition	Males Rank F'58	Males Rank Spg.'60	Females Rank F'58	Females Rank Spg.'60	rho a	rho b	rho c	rho d
1. Sin is a religious concept used to create guilt feelings in man.	5.5	5	6.5	6				
2. Sin consists of behavior which is not culturally approved.	4	2.5	4	4				
3. Sin consists of a violation of the rights of others.	5.5	6	5	5				
4. Sin is a violation of one's conscience.	3	2.5	3	3				
5. Sin is a denial of our best nature.	7	7	6.5	7				
6. Sin consists of any thought, word or deed that interferes with a proper relationship to God.	1	1	1	1				
7. Sin consists of a wilful participation in worldly acts that transgress Divine Law.	2	4	2	2				
					.88	.99	.97	.85

TABLE 24

Rank-Order Correlations for Definition of Eternity for Males and Females Fall 1958 and Spring 1960

Definition	Males Rank F'58	Males Rank Spg.'60	Females Rank F'58	Females Rank Spg.'60	rho a	rho b	rho c	rho d
1. After physical death there will be a judgment in which each man is sent to heaven or hell.	1	2	2	2				
2. All men will some day be responsible for their relationship to God.	2	1	1	1				
3. Heaven and hell are symbols of our relationship to God after physical death.	3	4	3	3				
4. Probably man does not have a separate identity after death, yet he participates in a kind of immortality.	4	3	4	4				
5. Man's immortality consists in the influence that he leaves behind him at death.	5	6	5	6				
6. The concept of eternity is a manifestation of man's fear of death.	6	5	7	5				
7. Our present life constitutes the whole of our existence.	7	7	6	7				
					.89	.89	.93	.96

value system. However, the results are not contradictory but just further emphasize that although religious values and/or moral values might undergo some change, basic beliefs tend to remain quite stable.

2. Glancing at the rank orders for each religious concept, it is readily evident that both males and females are more alike than different, that is, they both seem to think alike insofar as their choice of definition for each of the six religious concepts is concerned.

In summary, it would appear that basic religious values and beliefs did not change much for the majority of students although it is evident that there was a great deal of questioning and searching by many of the students during their two years of college. Few readily expressed a definite need for religion in their life. They attended church or a synagogue "if the dorm isn't too far away, if there is someone else to accompany them, and if they like the minister or rabbi." These students gave the impression that if these things are not compatible, then religion can wait. Social pressure or conformity was not forcing students to attend church--nor was the feeling of need for religion evident in the majority of cases.

Moral Values

Judging from what has been written about the moral values of college students, one might surmise that they are questionable to say the least. Words such as "amoral, vulgar, obscene" have often been used by those describing the characteristics of college students. The majority of the students interviewed during the sophomore year indicated that they thought the moral values on this and other campuses are not much different from those in any community. This is not because they thought that campus morals are particularly high. Some were seriously concerned about the reputation of the college population because of the status of some college students' moral values. The majority of students

interviewed assumed an attitude of "live and let live." These students felt that moral standards and behavior patterns were a direct reflection of home background and training and hence, what a student did at college was "probably no different from what he did before he came to college." Possibly for this reason, many students stated that college plays a very minor role in changing one's moral values. However, we should not lose sight of the fact that the choice of a particular student subculture and/or peer group will either reinforce or modify one's prevailing attitudes, values, beliefs, and interests.

Many students were concerned about cheating--not for what it did to the person (cheater) himself or his reputation but mainly because of what it did to the other students. "It takes only a couple of persons who have seen an exam to throw the curve off and the person who worked hard and really knows a good part of the material is the one who ends up with a "C" while the cheaters get an "A" or "B." For the same reason, unofficial test files and the opportunity some students had to obtain examinations were a source of worry and concern for the rest of the students.

The feeling expressed most often was that on a campus of this size, a person could do just about anything he wanted and if he were clever enough, he could get by without criticism or even comment from other students or the administration. "Everybody here can do what he wants to do, be with whomever he wants to be with, and it is no one else's concern. Every student has to live with his own conscience and if he is quiet about his activities, he will receive rebuff from no one."

From the interviews, it would appear that students felt they were no different from the general public and resented any infringement on their basic

rights by the faculty or administration.[12] Although many of the students interviewed did not always agree with the behavior of their fellow students, they adopted a rather thick shell and argued strongly that college students were mature adults, were supposed to learn independence and therefore should be allowed to govern their lives in the manner they saw best. The students interviewed were critical of those who typed college students as being "wild," "irresponsible," "apathetic," or "amoral." Their reaction to these criticisms directed toward incidents involving college students was, "it could happen in any small community." They were distrubed by their conviction that college students were always the scapegoat--that college students in general were typified as having low moral standards even though there was a small minority who were really responsible for this. They felt that the actions of a few students were genealized to be held as the behavior pattern of the majority.

Granted, these college students were correct when they claimed that the behavior of some students reflected upon the total group. At the same time, however, these same students would tolerate cheating provided it did not affect their grades, they would be tolerant of extra-marital sexual relations provided it did not involve their future fiancee or wife, and some would, and had frequented motels, hotels, and "dives" and saw nothing wrong with this provided they were not caught in the act. In other words, these college students after two years of college became more tolerant of unconventional behavior and manners, became more respectful for the views and opinions of

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12 There is a great deal of unrest among students at many of the state universities which have required clearance of speakers on campus. Judging from student editorials and letters to the editor, it would appear that these students feel they are being denied their basic right to listen to John Birchers, Communists, and other controversial speakers.

others and gained more insight into the behavior for others. At the same time they became more resentful of anybody who they felt either directly or indirectly infringed upon their basic rights which many of them defined as "doing what you want to do when you want to do it."

Administrative Rules and Regulations

In general, the students interviewed did not express vehement reactions to the administrative rules and policies with the exception of some who mentioned the drinking regulations and rules pertaining to off-campus, unapproved housing as being archaic and oligarchic. The majority of students, however, accepted the rules with resignation in the knowledge that for large groups of people to live together and function as a society, there must be some standard for acceptable behavior.

Of their own volition, many students mentioned the ban on drinking. Generally they opposed it and stated that the challenge of finding a way to obtain liquor and a place to drink it increased the desirability of it. A remark typical of many was, "It is an increased challenge to outwit the authorities."

Compulsory class attendance and dormitory rules appeared to be the ones next in rank which were most disliked by the students. The criticism of these ran, for the most part, that they were annoying to the individual and occasionally caused some inconvenience. It is interesting to note that although students are perennially complaining about compulsory class attendance, very few were in favor of undertaking independent study.

The ones most concerned about the rules and regulations expressed the feeling that they had been trusted by their parents and given the privilege of making independent decisions while at home. Now, when they came to college, they were being reated like children in need of constant supervision and

guidance. Many students felt that the university is too paternalistic and does not permit the student adequate opportunity to develop his social graces. Some students went so far as to say, "Treat people like children and they will manage to act the part." This might explain the childish antics that have often been associated with college student--living unit contests to see who can squeeze the largest number of students into a telephone booth or a room of prescribed size and such pranks as swallowing liver and live goldfish, to mention a few.

Students who conform to the rules and regulations do so more often because there is nothing they can do about them than because they believe that such rules are right, or for that matter, even necessary. Conformity for some is the path of least resistance or the expedient thing to do since they will be in this type of an environment for only two or three years. Any change that does result as a result of conforming will, more than likely, only be temporary.

The Most Important Things in Life

The expression which passed over the faces of many students when asked what the important things in life are, seemed to indicate that this question had serious meaning for them. Many remarked that this should be given more than a few minutes of thought. Several said that it could well be the topic of the entire two-hour interview. The most spontaneous answer forthcoming was that the most important things in life are those associated with a home, a family, and a degree of success in a profession which would allow the family to have the necessities of life with some "extras" of a material nature affording added comfort and pleasure as well as personal satisfaction. However, the results of the interviews were not in agreement with the picture of the American student carrying "The World Owes Me a Living" banner. As this particular group of students was approaching the mid-point of their college

career they were seriously considering the need for and the possibility of further education and training following graduation from their present program. They were aware of the competition in the business world...that a bachelor's degree no longer insured them security and placed them automatically on the top of the competitive heap. Many mentioned their concern about the choice of a graduate school and the type of advanced training which would make them more proficient in their field. In some way the trend toward the pursuit of excellence which accelerated with the advent of Sputnik had filtered through to these college sophomores and had made them aware of the need for education and training. These students were not seeking material benefits for themselves and their families with no thought of how these may be obtained. The human desire to succeed was as prevalent as always...but whether "education" or "home and family" were mentioned as being of first importance, it was difficult to separate the two. It is doubtful that these were separate in the minds of those students reflecting upon this topic. They knew what they wanted but did not expect to attain their goals without effort and planning.

To some, actually a very few, religion was the most important thing in life; without it there could be nothing else. The majority accepted religion as an intrinsic factor in the composite of home and family life; it would be there, but what part it would play seemed difficult for many to determine at this point.

A minority group was aspiring to considerably more wealth than any of their childhood acquaintances had possessed. They wanted big cars, big homes, travel, and toplevel positions. They were disgusted with the lack of material possessions and the struggle with which they felt their parents had been content all of their lives. From their college experiences they felt

that education is not the road to attainment but rather shrewdness and the ambition to work one's way to the top in any way that will get one there quickest. This was their impression of how most executives have become successful; they were sure that it isn't done through education and methodical progress.

Another small group felt that they would be satisfied with the essentials of life only. They didn't want to have to join in the ruthless struggle to succeed and felt that material acquisitions are less important than the opportunity to live in one's own way.

The reflections and introspections of the females were not marked different from those of the males. For females, the type of change which seemed most pronounced was that resulting from their independence from home and family pressures and the opportunity to solve their own problems. Nearly all were in agreement with the value of an education and considered that this is acquired through social and cultural experiences as well as through textbook learning. The moral and religious values of the student population as a whole were not a major concern of the students. Each identified with the group of his choice, and of course he was in agreement with the values of this group.

Views Toward Bias and Discrimination

College students have been described by many social scientists as being apathetic, self-centered, and unconcerned about anything that does not impinge in a direct personal way on their future (Jacob, 1957; Garai, 1962). During the time that the interviews were being held, the racial strife in South Africa was at its peak. However, many of the students interviewed did not seem concerned about the situation there; many frankly stated that they did not know what it was all about; some did not bother to read about unpleasant things and some just didn't bother to read the papers.

The mention of this situation in South Africa immediately brought to mind the topic of racial discrimination in our own country. This was not an immediate problem in the minds of these students at Michigan State. These students cited instances of many good friends they have made among students of other races...usually the Negro was predominantly the one discussed. For the most part, these students stated that they enjoyed their associations with Negroes, Jews, or Roman Catholics. Some students even remarked that they were from homes where racial discrimination and anti-semitism were quite firmly established but that they no longer could see "eye-to-eye" with their parents on these issues. Some students even remarked that they would never discuss such things at home because their families were so bigoted.

The two major topics of concern regarding racial discrimination did not directly relate to the broader issues of segregation versus integration in education and in the use of public facilities, but centered around (1) mixed dating and marriage, and (2) sharing a dormitory room with a Negro student.

Several students stated that they had dated Negro students and had not experienced any particular pressure from their social group because of it. These students felt that they would be willing to marry a student of another race. The one big problem (and this might be indicative of rationalization or some other defense mechanism) would be the acceptance of the children of the marriage, but they felt that this could be worked out. Most students, however, would not condone mixed dating and certainly not mixed marriage. They felt that there were too many problems involved, and even if they could justify it in their own minds they would not "hurt their families in this way." Most of them posed the question as to how a situation so unacceptable to society now can ever be worked out satisfactorily. Why then, reasoned many, get involved in a situation like this in the first place?

A few students stated that during their first year in the dormitories, they had been assigned to room with Negroes. For the most part, they did not object to this. But they did believe that their contacts with other students were not normal because of it. They did not realize this until later when they were no longer rooming with a Negro student. They doubted that such a situation was acceptable to either party involved and strongly criticized the administration for such room assignments. They stated that in many instances the Negro student only slept in the room and spent the rest of his time in the room of another Negro student. Apparently the purpose of mutual acceptance by members of the two races was not usually attained, and a result was a difficult situation for all involved.

On the surface, it would appear that for the students interviewed, there has been some change in their attitudes towards people differing in race, creed, or color. However, throughout the interviews, and inherent in the interview protocols which have been summarized above, it would appear that the change did not go deep and that acceptance in important, intimate social situations was minimal.

Often, there were rationalizations and apologies, and explanations offered for the situation. Despite a degree of "mellowing" in the attitudes towards others from different religions and races, it would appear that the home environment had firmly established certain basic beliefs and attitudes, and stereotypes. Even two years of college, with its courses and opportunities for interpersonal contacts, had not had much effect on some of these students.

Criteria for Rating A Person on Campus

This question of what criteria are used by students to rate their fellows on campus was responded to with little hesitation. This lack of hesitancy perhaps indicates that such ratings are of considerable concern to students.

The top ranking criteria agreed to by the majority of students centered around personality, ability to get along with people, fraternity or sorority membership, the people dated, and the number and kinds of activities participated in.

A few apologetically stated that probably grades should rank high on the list but that they really didn't. However, some students indicated that it seemed that grades were more important this year than last. Several ranked intelligence or grades third or fourth on a continuum of five or six items.

A lot of money, a car, or being extremely well-dressed were not of primary importance in the minds of the interviewees. They acknowledged the fact that fraternity or sorority membership requires more than the average amount of money. But the researchers felt that the students were referring to the "flashy" dresser or spender..., and that students regarded excessive spending as unnecessary or even an undesirable trait for high rating.

Oddly enough, the ahtlete was not so highly esteemed as might have been expected. Some students felt that one must excel in a particular area to be recognized and that athletic prowess is only one possible area.

Their image of the "top man on campus" was that of an all-around person whom everyone likes, who is ambitious and eager to participate in many activities, has a sense of humor, and is generally fun to be with but who also has a sense of responsibility, good manners, and does and says the right thing at the right time.

Dormitory Living

From talking with the students regarding their general impressions of life in the residence halls and its influence upon them, two or three general conclusions can be formed:

1. One of the greatest advantages of living in the residence hall is the opportunity to meet and to learn to live with many different types of people. The development of

tolerance and of an understanding of individual differences is acknowledged by many students as the greatest benefit of residence hall life.

2. To many students, the residence hall is a large, impersonal institution like a hotel. It serves chiefly as a convenient place to live.

3. Students are not influenced by associations with those in authority in the residence hall...the housemothers, the residence advisers, the head advisers. Their remarks indicate that they feel that the only function of these persons is that of law enforcement officer. They have little confidence in them as counselors and frankly stated that they would discuss a problem with a classmate and attempt to solve it themselves before they would take a problem to the resident adviser.

Several students stated that they "learned more about other religions and other cultures" as a result of living in the dorm. As a result they became more tolerant and understanding of people. Were their attitudes influenced by an actual acquisition of knowledge which changed their beliefs? Or did they identify a person of a certain race or religion as being characteristic of this group and change previously held attitudes and values because of this association? Based upon the data gathered during the interviews, it would appear that acquisition of knowledge plays a more important role although it is recognized that communication of affect no doubt plays its part. The separation of the cognitive and affective forces is indeed a difficult one because of the continuous interaction of the two. Nevertheless, it should be recognized that there is such an interaction and that one force would not occur without the other.

Sorority and Fraternity Membership

Interest in and attitudes toward Greek organization membership seems to score either very high or very low. There is seldom a student who expresses a mild or passing interest in this affiliation. The reasons for the strong, positive interest or the definite lack of interest are clearly formulated by the students.

The values of membership as seen by the students at this point are mostly in regard to present social advantages...knowing the right girls or fellows to date, being better known on campus as the result of membership, and being better adjusted socially..."knowing what to do when" as one student expressed it. Several fellows mentioned that they felt that fraternity membership would be a most valuable contact for them in business and professional life. Those who were members but who weren't living in their fraternity house gave as their reason that the quota of occupants had been filled by upperclassmen or that the expense involved was prohibitive. They were all eager to live in the house at least one year before they graduated.

The main objections to sorority or fraternity membership can be summarized in the following manner:

> The cost of membership, both living costs and the cost of clothes. Activities are prohibitive in many instances. The students on the whole feel that it is the sororities and fraternities who set the standards of dress on the campus even though they are a minority group.
>
> There are some students who "don't want to be told what to do, what to say and what to wear all of the time." They feel that the membership would take away all of their independence and individuality...that they would be doing something in order to conform and not because they really wanted to do it. This group feels that their life would belong to the group and not to themselves.
>
> Membership would limit association with friends whose acquaintance was made while living in the dormitories. In this respect, membership would lead to a much narrower life.
>
> The encouragement to study and keep grades high is only to maintain a respectable total grade-point-average for the house where they are living, and little interest is shown in what the individual himself (herself) accomplishes. The social demands of living in the houses would make it very difficult to find time or motivation to study.

Only a few of the students interviewed felt that they had been unchanged by the experience within their sorority or fraternity. The majority of them indicated that the social advantages are the greatest advantages. On the

Experience Inventory, 21% of the respondents (N=399) mentioned that their membership had had a positive influence upon them.

Summary. The changes taking place during the sophomore year can be summarized as follows:

1. There is no relationship between type of change and sex of the student undergoing the change.

2. There is a significant improvement in critical thinking ability.

3. Students, as a group, become less authoritarian and more receptive to new ideas.

4. There is a significant movement towards the emergent-value orientation continuum.

5. Changes occurring during the sophomore year, although in the same direction as those occurring during the freshman year, are not of the same magnitude. That is, the mean change is smaller during the sophomore year.

6. The majority of students begin to question their religious beliefs and tend to become more relativistic in their religious and moral values.

7. Students appear to become more tolerant of unconventional manners of dress, behavior, and manners.

Interviews with a selected number of 'changers' and "non-changers" in attitudes and values suggest that:

1. Religion, per se, does not play an important part in lives of college sophomores.

2. Moral values are relativistic.

3. Cheating, dishonesty, and immorality are objected to mainly if they affect the life of the student. "If you can get away with it and not be caught," and "if it doesn't harm my grades," students are not too concerned about cheating.

4. College sophomores appear to be unconcerned about things and events going on outside of their immediate academic or social environment.

5. The important things in life appear to be centered about the material ends rather than on doing things for the betterment of society.

CHANGES IN CRITICAL THINKING ABILITY, ATTITUDES, AND VALUES DURING THE JUNIOR YEAR

In the spring of 1961, another random sample of 500 students was selected from those who had enrolled at Michigan State University as freshmen in 1958 and were still enrolled. These students were asked to participate in the third phase of the study. Usable, complete test data were available for 235 males and 189 females.

Tables 25 and 26 indicate that the non-respondents were not markedly different from the respondents terms of initial measures in critical thinking ability, stereotypic beliefs, and traditional value orientation.

TABLE 25

Differences in Initial IB, CT, and DVI Means Between Spring, 1961
Male Respondents and Non-Respondents

Measure	Respondents (N = 235)		Non-Respondents (N = 88)			
	Mean	S.D.	Mean	S.D.	t	P
IB	64.73	13.93	64.04	13.12	0.412	ns
CT	32.98	6.96	32.14	6.62	1.000	ns
DVI	34.71	7.19	34.84	7.18	0.414	ns

TABLE 26

Differences in Initial IB, CT, and DVI Means Between Spring, 1961
Females Respondents and Non-Respondents

Measure	Respondents (N = 189)		Non-Respondents (N = 87)			
	Mean	S.D.	Mean	S.D.	t	P
IB	64.72	12.82	66.91	12.53	1.332	ns
CT	32.63	6.72	32.94	6.93	0.347	ns
DVI	33.64	7.43	34.59	7.58	0.968	ns

From Tables 27 and 28, the following conclusions appear to be warranted:

TABLE 27

Means and Standard Deviations for Critical Thinking Ability, Stereotypic Beliefs, and Traditional Values for Males as Freshmen, Sophomores and Juniors (N=235)

Measure	Beginning of Freshman Year		End of Freshman Year		End of Sophomore Year[1]		End of Junior Year			
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	t[3]	P
IB	64.73	13.93	66.13	13.71	71.13[2]	13.71	73.68	13.67	2.01	< .05
CT	32.98	6.96	37.07	6.48	39.06	6.04	38.99	6.47	0.12	ns
DVI	34.71	7.19	39.92	7.55	32.25	7.81	32.47	8.18	0.30	ns

[1] Although these juniors were not tested as sophomores, significance tests indicated that there was no marked difference among those students tested as sophomores and those tested as juniors insofar as initial status scores (entering freshmen) are concerned. For this reason, we felt justified to use the sophomore year data for these juniors, recognizing that any bias would not greatly affect the final results.

[2] These IB values extrapolations based upon changes in dogmatism (also a measure of the authoritarian syndrome) as well as previous research with the IB.

[3] t-values for Sophomore-Junior years.

TABLE 28

Means and Standard Deviations for Critical Thinking Ability, Stereotypic Beliefs, and Traditional Values for Females as Freshmen, Sophomores, and Juniors (N=189)

Measure	Beginning of Freshman Year		End of Freshman Year		End of Sophomore Year[1]		End of Junior Year			
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	t[3]	P
IB	64.72	12.82	68.21	14.44	73.47[2]	14.44	75.92	15.51	3.26	<.05
CT	32.64	6.71	37.44	6.72	38.53	6.31	38.96	6.71	0.64	ns
DVI	33.64	7.43	31.98	7.59	30.27	6.87	29.76	6.52	0.74	ns

[1] Although these juniors were not tested as sophomores, significance tests indicated that there was no marked difference among those students tested as sophomores and those tested as juniors insofar as initial status scores (entering freshmen) are concerned. For this reason, we felt justified to use the sophomore year data for these juniors, recognizing that any bias would be minimal and would not greatly affect the final results.

[2] These IB values are extrapolations based upon changes in dogmatism (also a measure of the authoritarian syndrome) as well as previous research with the IB.

[3] t-values for Sophomore-Junior years.

1. For both males and females, there was a movement in the direction of a lessening of stereotypic beliefs from the beginning of the freshman year to the end of the senior year. The changes, however, occurring between the end of the sophomore year and end of the junior year, although statistically significant, were of lesser magnitude than those taking place between the end of the freshman year and end of the sophomore year. This would suggest that during the sophomore year, because of contact with course material, extra-curricular experiences, and other college experiences they underwent a marked change in their degree of stereotypy. What the nature of the contact is, and how it manifests itself, is not clear at this time. It is conceivable of course that the maturation process is most rapid at this period of the students' life.

2. For both males and females, there was no marked change in critical thinking ability and traditional value orientation during their junior year at Michigan State University. Although the changes were in the direction of an improvement in critical thinking processes, and a movement away from the traditional values ("inner-directed" to "outer or other directed"), the changes were so slight as to be of little practical significance.

3. With the exception of females' value orientation, there is no evidence to suggest that students become more homogeneous in their attitudes and values while they are attending college, as was reported by Jacob (1957). In fact, in some areas, these students became much more heterogeneous than one would expect.[13]

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[13] Since withdrawals are not included in these data, we would have expected to find a narrower range on the test scores of those subjects tested in their junior year.

Some Views and Perspectives of Juniors

During Spring term, 1961, interviews were conducted with 89 students, 45 females and 44 males, who had shown some change in their attitudes and values from the freshman to sophomore year. Some of the students changed in only one while others changed in more than one. The length of time spent in the interviews varied from 45 minutes to over three hours; the average interview lasted about two hours. As in the interview sequence followed in the sophomore year, the coverage of the interview was planned. However, the interview, per se, was relatively unstructured in that specific questions were asked only when the interviewee failed to cover them in his discourse.

We were particularly interested in investigating individual reactions to Michigan State University, choice of major area of study, choice of extra and co-curricular activities, and topics of conversation in which students most frequently engaged, either in bull-sessions or over a cup of coffee. In addition, we wished to learn the impact, if any, that courses, instructors, living units, and so forth had upon the attitudes and values of these students. For the purpose of this section of the report, we will not discuss the perceived impact of various types of experiences and contacts. This aspect will be covered in greater detail in Chapter 5. The following generalizations were drawn from the *interview protocols*.

A Large School

The majority of students was not concerned about the increasing size of Michigan State and felt that in many ways, this was advantageous. On large campuses, students felt that the most adequate educational facilities imaginable are available; the large number of students enrolled here enabled one to find a group of people with similar interests. Some of the responses with regard to the size of the school and the diversity of the students enrolled

were: "You meet a large cross section of people here;" "Social, cultural, and educational life is more varied and has greater value because of the size...We are able to attract well-known artists to our Lecture-Concert series which I am sure would not be the case at a small school;" "The contact with foreign students is very important in learning about other people and how they live;" "The large school is not impersonal as it might seem to be and the student body here is very friendly."

Many students remarked or implied that large schools are sometimes thought of as party schools and that they had this impression about Michigan State before they arrived on campus. Now, as juniors, they were ready to refute this statement. The majority of them saying that it is neither entirely a "party" school nor is it an "all-work" school. Most of the students stated that Michigan State is getting "harder but better" and that since they were first enrolled as freshmen, greater emphasis has been placed upon the quality of work produced by the students.

A few students, particularly those who came from small communities and small high schools, felt that they were "lost in the shuffle" when they came to Michigan State. They felt that students such as themselves should enroll in a smaller school such as a junior college for one or two years and then transfer to a large school if they wanted to become a part of a large student body.

It appeared that some of the students coming from small communities thought of a large state university as being composed of "city slickers who are here just to have a good time" and even after three years, this image had not been changed.

Very few of these juniors were critical of the university itself, of the campus facilities, or of their experiences at Michigan State University.[14]

[14] We might assume that those who were unhappy had left by this time.

The majority of criticisms were those which are present at all large schools and lie within the area of "too large classes, too many poor instructors, and in some instances, too little individual attention from the instructors." Most of the students stated that if large classes resulted in poor instruction, they would supplement classroom experiences with independent, outside reading. However, if the quality of instruction were poor because of the instructor, they would be careful to avoid that instructor in the future.

They believed that some of the limitations of a large school, (and these are values in the large sense) were "the size of the school is prohibitive to the development of the quiet, shy person;" and "the first two years are much too impersonal." Another limitation mentioned but one which is not restricted to large schools only was that "many fraternities here are only social gathering places for drinking." The general feeling was that emphasis is placed upon research by the faculty which will indirectly benefit the student and that emphasis is also placed upon the physical and mental well-being of the student. However, too little emphasis is placed upon the actual teaching of and learning by the individual student. Many of these students no doubt felt that large classes and graduate assistants are not conducive to optimal learning conditions. Many of the students felt that they should have been taught by full-time instructors, not because the graduate assistant is not a good teacher (many students stated that in their opinion, the graduate assistants are more patient and sometimes better teachers than the regular faculty) but because they felt that graduate assistants do not have an adequate knowledge of the subject matter.

Dormitory Life

Students appeared either to be very enthusiastic about dormitory life or to express considerable dislike for it. There was no neutral group. Most of

the students felt that it is good for a freshman student to live in the dormitory during his first year in college, and agreed that this should be required by the administration. They felt that by doing this, students would learn more about campus life, they would have the security of being with students who were also beginning their college education (that is, everybody in the same boat are placed together), and that an advantage would exist if all students who were taking the basic courses were in one housing unit.

After the freshman year, students felt that they should be allowed to live in off-campus housing. There was much concern and unhappiness among the females who felt that they were being discriminated against because males can live in off-campus, university-approved housing after their freshman year, but female students may not unless they live in a sorority house.

The most common response relative to living in the dormitory was "I have gained a better understanding of people and a greater acceptance of the differences among groups of people." The following remarks are typical of students' reactions to dormitory living: "It is very difficult to study in a dormitory; when you want to study your roommates do not...In a room with two or three students there is always one person at least who is not ready to study when you are." "The dress regulations (wearing shirt, tie, and coat at meals) are silly for men." "I hated dormitory life...It is too impersonal and, as far as I'm concerned, the dormitory was just a place to stay." Many students remarked about the value of dormitory life insofar as it affected their views about people of different races and faiths. Nearly all the students interviewed, both during the sophomore and junior year, remarked that "the bull-sessions held in the dormitory strengthened my views about things. It was a far better learning situation than many of my classes have been."

It was readily evident from an analysis of the interview protocols that student opinion was that dormitory living has something to offer to all students and should be required for the freshman year but only the freshman year. The values that dormitory life has to offer to the students are as varied as the personality makeup of the students. For some students, it serves to satisfy certain needs such as companionship, a feeling of belonging or identification, and a feeling for being wanted. Although a small number of students felt that the dormitory is "just a place to eat, sleep, and study with no resemblance to normal living," nearly all of the students were agreed that the experiences there afforded them an opportunity to examine their prevailing interests, beliefs, ideals, attitudes, and values.

Sorority and Fraternity Membership

To many people, sororities and fraternities are nothing more than cliques of the sophisticated and well-to-do, organizations that practice discriminatory policies by virtue of their selection process, and groups of individuals who are more concerned with the social amenities than they are with obtaining a college education.

Fortunately or unfortunately (depending upon one's disposition toward fraternities or sororities), the feeling of need to belong to such a social organization is not great among students at Michigan State University. The size of the institution offers any student so many opportunities and outlets, that students feel they can identify with a group of their choice without Greek organization affiliation.[15] The following comments serve well to indicate actual feelings among students regarding Greek affiliation: "Would like to have joined but couldn't afford it;" "More friends, more dates, more

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[15] The ratio of fraternity (or sorority) membership to non-membership is about 1:4.

things to do;" "Has given me goals to work for and a place to identify;" "Made lifetime friends;" "Important for future contacts;" "A snobbish and cut-throat group;" "You have to comply with the values of the group and I don't like this;" "Forces you to budget time and get along well with people;" "Rather be independent than to be told what to do."

The students viewed the advantage of membership as mostly social --knowing the right kind of boy or girl to date--being better adjusted socially. The long-range value as seen by most men was that fraternity membership would afford them valuable business contacts for the future. The greatest future value seemed to be the material good it would do the individual.

Those students who were really enthusiastic about fraternity or sorority affiliation (and many "Greeks" were disappointed) appear to be those who were definitely "group members" and who felt a definite need for close affiliation with a specific group. These students liked the conformity of this type of life and apparently had no objection to living "like the rest do." On the other hand, it would appear that those who had negative views about the value of fraternity membership are those students who were not willing to comform or who were "inner-directed."

Cultural Activities

All students at Michigan State University, and no doubt, all students at other colleges and universities are entitled to attend athletic and cultural events without any special assessment being levied. At Michigan State, a lecture-concert series of plays, opera, ballet, symphonies, and individual artists is available to all students. However, only a small percentage of the student body takes advantage of this, unless a rather popular level of performer, like Mantovani or Fred Waring, happens to be on the program. There is however, good student attendance at the foreign-film series and at the

University Theatre plays. In addition, many of the students interviewed regretted that they did not attend more cultural events, and stated that lack of time or more important activities have always taken precedence. Once again, it is evident that certain values are being displayed here. The student, for example, has the choice of going to see the New York Ballet or going to see High Noon. However, just because he is apt to go to the movie is not prima facie evidence that he, or for that matter, college students in general, lack an appreciation for higher art forms. It would appear, that at this period in his life, the so-called cultural or artistic events do not mean much and it is only after the opportunity no longer exists that the student regrets his decision.

At the same time, we are not able to conclude that those students who do attend are markedly different in their values from those who do not attend. It is quite conceivable that students who attend these programs are doing so because it is free and an inexpensive way to spend a social evening with a date. Comments such as this are typical: "I have attended just for relaxation;" "I attend for enjoyment when there is nothing else to do;" and "I have attended only those activities required for a course."

Social Activities

Social activities, per se, do not hold much value for the average college student even though one might be apt to conclude that because of the large number of parties and dances that this aspect of college life consumes a great deal of the students' time, time which some feel should be spent studying.

Judging from the interviews, only a small percentage of the students are actually involved in the various social activities. In addition, judging from the turnout at these activities, very few of the students attend them. The

majority of students were content to go out with a small group of friends to a Ratskeller or some other such place and spend an evening of drinking beer, talking, and listening to a three-piece combo playing the Twist. The major value derived by those actively engaged in social activities appeared to be learning how to get along with other people--sharing and being willing to give in when necessary even though they might feel strongly about some matter. For the most part, students learned to "give-and-take" in their social contacts.

It is almost impossible to isolate and identify a particular type of individual who is socially active, with the exception of those who are members of fraternities or sororities. Whether such membership results in such activity, or vice versa, is difficult to ascertain at this time.

Although some critics of higher education have claimed that many of our colleges are "party schools" and that students are more interested in social activities than academic pursuits, the results of this research fail to substantiate these claims. If anything, the majority of students are hard-working, and many have part-time jobs to support themselves while at college. Although more students might like to participate in activities, the fact is that they do not.

Living Away From Home

As in the responses made during the sophomore year, the most frequently made statement was that living away from home has been a period of adjustment and that it afforded the student an opportunity to become more independent. This independence, however, for the most part, revolved about the students' daily schedule and personal choices--making decisions about buying clothes, determining the amount of time to allocate to studies, and choosing companions and activities.

Although college students are constantly seeking greater independence, claiming that the university administration is too paternalistic, and attempting to sever the umbilical cord linking them with home and family, it would appear that this is a normal part of the maturation process. Time and time again, students said that they revert to their formerpattern of consulting with their family when fairly important decisions have to be made. In other words, they want to have their decision confirmed or reinforced. Students like the privilege or want the privilege of being able to make their own decisions but they also appreciate and often want the help of their family.

Although the majority of students said that they would not be adverse to returning to their home community provided professional opportunities were available, there were a few who said they had made a clean break with home and would like to keep their independence.

One of the most evident changes that came about in students while they were at college was a greater respect for their family's decisions. Many students also stated that they were now better able to understand their parents' reasoning in some of the rules set down for them while they were living at home. Possibly, because they were away from home, possibly because of some sad experience, and possibly because they were growing up, the students stated that they had greater appreciation for their homes and families now than they did when they first came to college. Being away from home necessitated students' learning a certain degree of self-discipline and they recognized this as one of the major learning experiences of their college life.

It should be understood at the outset, that the impact of being away from home should not and cannot be construed as either a direct or indirect impact of college. No doubt, the same growing pains would have occurred if the student had taken a job and left home or if the student had joined the armed

forces. Although many students remarked that this period in their life away from home was a significant experience, the only credit that college can take is that it was an agency which took the student away from home.

Conformity

A concern was expressed by this group of juniors that the general public identified college students as conformists. The students' reaction to this was that the majority of people conform to the things which they like and which they feel will be of benefit to them. This is an age of conformity and the feeling was expressed that college students do not conform to a greater extent than other individuals. The students admitted that there might be some semblance of conformity in dress; in trench coats, tennis shoes, etc., but they qualified this by saying that these items are inexpensive and comfortable.

The point raised most frequently by the students when questioned about the conformity of college students is that they conform to the activities of the crowd so that they "will be one of them." This is in line with the general movement of value orientation from the "inner-to-outer" directed. Students, just like non-students want to belong; therefore, they do not want to be so different that they will not be accepted by the group.

Actually, no one is able to avoid some form of conformity. Remarks such as "It would be hard to go to college and not conform to some extent," "Everyone wants to be accepted and will conform to some degree," "Living in a dormitory necessitates conforming to some degree," "It is easier to conform than to fight it," were typical. The students intimated that even the non-conformists are conformists in one sense of the word.

The word conformity appeared to be a disturbing one to many of the students. It seemed to carry for them the connotation of lack of independent

thought, and, at this point in their lives, independence was very important. It would appear that the students were ambivalent with respect to conformity--on the one hand, they wanted to be independent, while on the other hand, they wanted to be able to identify with some group. At one time, they would tell you that they were very independent, that they had completely severed their dependence upon home and family, and in the next breath would say that they conformed to dress regulations on the campus, and identified with a group of people whom they enjoyed being with and who usually did things as a group rather than as individuals.

Conformity, as are other values and attitudes, can be said to lie on a continuum. College students, like others, must conform to certain things in order to exist. The college community, with its mores, customs, and traditions, encourages some semblance of conformity. For the majority of these students, conformity was practiced for the sake of convenience and for the need to be associated with some larger group of individuals.

Rules and Regulations

Respect for law and order is a value that is inculcated in the majority of our homes and therefore we would not expect this value to be markedly altered while a student is at college. This is true insofar as the general rules and regulations that society imposes for our well-being, e.g. speed laws, are concerned. However, college students on this and other campuses are continually rebelling against the rules and regulations placed upon them by the administration. To many of the students interviewed in both the sophomore and junior years, rules and regulations were archaic, were made to be broken, and were made so that parents and alumni would be sure that "someone is watching over their children."

It must be remembered that this period of time was a very crucial one in development of these students. They were away from home, they were seeking to become independent (although they were still afraid to make a complete break with their home and family) and they felt that anything placed in the path of obtaining this independence was just another stumbling block that must be circumvented. Comments such as "Mostly the rules have made me find ways to break them and get around them," and "There are ways to get around anything and everything if you try hard enough" suggest that the rules and regulations could be avoided.

It is interesting to note that although these students as juniors found no need for rules and regulations, they did at the same time state that they were necessary for freshmen. It would appear that these students believed that freshmen are naive, gullible, and possibly too irresponsible to govern their own lives but that juniors and seniors have developed this sense of responsibility and can live their own lives without any outside supervision. The following comment seems representative of the juniors interviewed: "Rules and regulations are for the most part good for freshmen or until the student finds himself. They should, however, be lessened for seniors."

Topics Most Frequently Discussed

When asked what topics of conversation are most frequently discussed in bull-sessions or at informal get-togethere in the grill or Union, the girls readily admitted to boys, dates, sex, their academic major, marriage, and how marriage can be combined with their professional aspirations. The boys' conversation was relatively similar to that of the females: girls, dates, sex, their major area, when they plan to be married, and the manner of living which they would expect to provide for their family.

Although the topics listed above are not necessarily in order of importance, they do give the indication that none of the topics was really intellectual. This, however, was not the case. Religion was the area of conversation that was most frequently discussed by the majority of students, both males and females, especially in the dormitory. Students were unanimous in their opinion that they learned much about other religions and the customs of other people by living and talking with those who differed from themselves and that in many instances their stereotypes and prejudices were removed partially, if not completely.

As was evident in the sophomore year interviews, the students were o ignorant of current events. With very few exceptions, these students knew nothing of the problems and issues facing the world and themselves at this time. They were, very apathetic and self-centered.

When questioned about their lack of knowledge in world affairs, most of the students said that the college campus is a secure little world within itself and that there are too many other things to occupy their time and interests. Many of them did not even read the daily newspaper with the exception of the sports and comics section, nor did they listen to the news on TV or the radio unless it were for some special occasion such as the Presidential election when many students rented TV sets. Outside of this, about all they knew about current events or world affairs was what could be gleaned from the student newspaper or from what professors might mention in class.

The students readily admitted that this was their world and that they would soon be a major part of it, but their interests seemed to focus on "today" and their personal problems. It was readily evident that many of the students were still unwilling to face reality, and many were truly afraid

of the future. Possibly, this is an explanation as to why they appeared to be so ignorant of major events in the world about them which indirectly would affect them greatly in the course of time. Only when the situation in Katanga appeared to "blow itself wide open" did these students become concerned--the males because they thought they would be drafted and the females because they thought their boy friends would be drafted. Other than that, these students were gloriously contented to remain within the walls of the university and in this way isolate themselves from facing reality.

Moral and Religious Values

When students were questioned concerning the morals and values of college students, and whether it was their general opinion that these morals and values were necessarily bad or different from those held by other persons, the consensus was that the moral and ethical values of college students are no different from those of the community at large. In fact, these students as well as those interviewed during the sophomore year became very defensive and antagonistic when this question was raised. They felt that there is no reason to single out college students and make implications that they are different from their counterparts who did not attend college and who are now married and living in the outside community.

The general answer in regard to morals and values of college students was that with any large group, one will find a wide variation in moral standards, but for the most part, the deviants are small in number. In this large group, it was believed, you will find people with very high moral standards who have not changed since they came to college; there will be a group with low moral standards who possessed these values and attitudes when they entered; and you will find a small group who are "sowing their wild oats" and who have

considerably lowered their values and moral standards since they entered college. Many of the students felt that it is this latter group who give the average college student a bad reputation.

The students interviewed were very honest and forthright in their discussion of the problem. They related the tales of motel weekends, beer-busts, and unsupervised parties--some even admitting that they had participated in such activities. However, they still were adamant in their views that the morals of college students are not as bad as some persons make them out to be.

Honesty is one value which seems to be very transient and more likely to be relativistic than absolute. For example, many students would never stoop to take a towel as a souvenir from a hotel room. Such behavior would lead one to conclude that college students are quite honest. On the other hand, these same students were unconcerned about cheating on examinations provided it did not affect them directly. "I would only turn him in (a cheater) if I felt that it would result in my getting a 'D'." It would appear that many college students were not concerned about the moral involvement of other students who are willing to cheat, they were only concerned about what cheating would do to their grade if the examination were marked on a curve and this curve were upset by those who cheat during the examination or had obtained a copy of the examination beforehand. Although this was a general feeling rather than exception to the rule, the majority of the students felt they were basically honest and had reasonable moral standards.

It was the general concensus of opinion that the moral values of college students were pretty much the same as they were when they entered college, and that any change which came about while they were at college would probably not be a permanent change. Furthermore, there was agreement that in most instances, students will revert back to those moral standards with which they

grew up and which were quite firmly established before they came to college. This would suggest that the influence of peers and the student sub-culture might result in the modification of moral values for some students but that once this influence has worn off, the individual will return to his prevailing beliefs and behavior.

When questioned about the religious values of college students, the responses were as varied as the personalities of the students with whom the interviews were being conducted. Those who were very religious felt that although not too many college students can be called devoted Christians, there are not too many students who are atheists. On the other hand, those who were not too religious did not find the average college student irreligious. The majority of the students stated that they had undergone a great deal of soul-searching and questioning in regard to their particular religious faith and to the part that religion plays in an individual's life. The average college student became more of a relativist insofar as religion, morality, and honesty are concerned. Many saw the value or need for religion but felt that this issue did not take precedence over others. A pertinent comment made by one student seems to give the picture its true perspective--"students here forget about religion while at college because they're interested in other things and hence neglect religion....I see the need for religion but it is not pressing now."

Value of a College Education

At the end of the junior year, those students still enrolled at Michigan State University felt that a college education is a good thing, that it is necessary for their success in future life, and that without a college education a person cannot expect to achieve any high degree of success. These students felt that the university should "teach them to get along better with

all kinds of people, should prepare them for a vocation, should give them some idea of the world and its activities, and, in general, should give them all the basic facts that would make for a happy and successful life for them." A college education seems to have been the formula or panacea for complete success and happiness in the eyes of a majority of students. These students do not think that college should try to change a person but felt that change will occur without the college making any concerted effort.

Judging from the material presented earlier, it would appear that nearly three years of college fulfilled some of the desires and aspirations of these students. However, it is readily evident that our college students, whether they be freshmen or seniors did not have a highly knowledgable and insightful idea of the world and its activities. In fact, one might go so far as to say that these students were quite ignorant of what is happening outside their immediate environment and only began to take on some active awareness when the world situation seemed to affect them or their loved ones.

Self-Perceived Changes

When asked to indicate the manner in which they thought they had changed since they first came to Michigan State as freshmen, it was difficult for many students to admit that they had undergone any change at all in their basic beliefs, values, attitudes, and so forth. The majority said that they had become more mature, that they had learned how to make their own decisions, that they had become more independent of their families, and in general had grown up and learned how to take care of themselves. Some of them mentioned that they had become better critical thinkers, that they were now better able to think through problems more fully and more analytically, and that they now really had begun to appreciate the value of a college education and to recognize how slight their chances for success would be without a college

education. It should be noted here that it appears that the words college "education" and "degree" are used synonymously. Although the students always used the word education, it appears likely that they meant a college degree. There was slight evidence at any time, that college students are primarily interested in obtaining a broad, liberal education. Many of the students are resentful that they must take four general education course sequences, and it is only after they are seniors or have left the institution that they more completely see the value in these courses. The majority of students come to college to prepare for a profession and as far as they are concerned, the faster they are able to take courses in their major and graduate, the better they like it.

Table 29 contains some responses of males and females to certain selected issues. These responses were obtained from the students during their junior year, and by the nature of the sampling procedure employed, we can infer that this is the way the majority of juniors felt about the issues surveyed.

Reference to Table 29 reveals that there are only six items upon which there is significant difference between males and females. These six items are: (1) tolerance of people differing in race, creed, color, or religion, (2) dependence upon other people, (3) feeling that the major aim of college is to prepare one for a profession or vocation, (4) drive to get ahead as quickly as possible, (5) an idealistic outlook toward the future, and (6) tolerance of immoral behavior. The specifics will now be considered in a little more detail.

Table 30 contains the observed and expected frequencies for the six items to which there was a significant sex difference. From this table it is readily evident that:

1. A proportionately larger number of junior females became more tolerant of people differing in race, creed, color or religion. At the same time,

TABLE 29

Some Self-Perceived Changes of Male and Female Juniors

Question	Males (N=241)			Females (N=189)			X^2
	More	Less	Same	More	Less	Same	
1. Tolerance of people differing in race, creed, color, or religion.	132	20	89	128	9	52	7.768*
2. Concern about the future.	183	15	43	148	12	29	0.475
3. Respect for the views and opinions of other people.	183	9	48	145	2	42	3.240
4. Dependence upon other people.	24	159	58	26	144	19	14.499*
5. Awareness of my own goals in life.	178	21	41	152	19	18	5.124
6. Tolerance of immoral behavior.	96	49	96	103	24	62	9.982*
7. Interest in world affairs.	190	10	41	142	7	40	1.211
8. Concern about the present.	157	16	68	104	17	68	4.571
9. Feeling that a major aim of college is to prepare one for a profession or vocation.	63	86	92	31	85	73	6.900*
10. Feeling that college should also stress a liberal-arts type of education.	146	20	75	119	11	59	1.001
11. Acceptance of the Bible as a guide to modern living.	37	58	146	22	43	124	1.568
12. Ability to accept new ideas.	207	4	30	163	0	25	3.189
13. Feeling that money is important.	63	56	122	53	35	101	1.418
14. Feeling of the necessity for religious faith to achieve a mature philosophy of life.	73	52	116	66	41	82	1.221
15. Attachment to a religious sect or denomination that I can believe in and defend.	34	84	123	38	54	97	3.581
16. Commitment to a set of religious beliefs.	48	72	121	45	50	94	1.183
17. Understanding of the behavior of people.	226	2	13	181	3	5	2.479

TABLE 29 (cont'd)

Junior Year Retesting - Spring 1961 - Experience Inventory, Part I

Question	Males (N=241)			Females (N=189)			X^2
	More	Less	Same	More	Less	Same	
18. Confusion as to what I want out of life.	45	159	37	43	122	24	1.420
19. Drive to get ahead as quickly as possible.	108	42	91	55	43	91	11.119*
20. Confidence in my ability to deal with new problems	191	21	29	145	17	27	0.509
21. Desire to accept a job for the satisfaction it has to offer rather than the salary it pays.	144	19	78	109	14	66	0.316
22. Realistic outlook towards the future.	182	6	53	156	5	28	3.274
23. Idealistic outlook toward the future.	49	119	73	22	127	40	14.082*
24. Feeling that a college education is necessary to succeed in the world.	133	32	76	104	17	68	2.331
25. Responsibility for my own education.	185	9	47	136	4	49	3.203
26. Dependence on the teacher for my education.	15	167	59	8	146	35	3.429
27. Importance of classroom attendance.	72	95	74	46	74	69	2.258
28. Importance of grades as measures of achievement.	39	150	52	24	118	47	1.377
29. Respect for rules and regulations.	56	55	130	27	50	112	5.502
30. Ability to get along with other people.	184	3	54	146	2	41	0.067

* Significant at .05 level of confidence.

TABLE 30

Observed and Expected Frequencies of Males and Females to Items Which Displayed a Significant Chi-Square Value

Item	Males (N=241) Frequencies			Females (N=189)		
	More	Less	Same	More	Less	Same
Tolerance of people differing in race, creed, color, or religion.	132 (145)	20 (16)	89 (79)	128 (114)	9 (12)	52 (61)
Dependence upon other people.	24 (28)	159 (169)	58 (43)	26 (21)	144 (133)	19 (33)
Tolerance of immoral behavior.	96 (111)	49 (40)	96 (88)	103 (87)	24 (32)	62 (69)
Feeling that a major aim of college is to prepare one for a profession or vocation.	63 (52)	86 (95)	92 (92)	31 (41)	85 (75)	73 (72)
Drive to get ahead as quickly as possible.	108 (91)	42 (47)	91 (102)	55 (71)	43 (37)	91 (79)
Idealistic outlook toward the future.	49 (39)	119 (137)	73 (63)	22 (31)	127 (108)	40 (49)

Expected frequencies are in parenthesis.

a proportionately larger number of junior males became less tolerant of such individuals. It is indeed difficult to explain why females are more likely to become tolerant of foreigners or those differing in color or religious faith since there are not too many instances where the experiences of one sex are markedly different from those of another sex. Possibly, because females are less stereotypic, are more flexible, and are more receptive to new ideas, the experiences that they have with other people might be more apt to make them still more tolerant of other people, their views, their beliefs, and their ideals.

It is also difficult to understand why some students became less tolerant of other people while at college. Although colleges would usually like to have their students become either less stereotypic or less prejudiced towards others as they move from the freshman to junior year, or at least remain the same if they were unprejudiced or open-minded to begin with, they would not want many students becoming more prejudiced. Yet this was the case for some students in this study, albeit the numbers were very small. Once again, why there should be a sex differential operating here is difficult to explain.

2. A proportionately larger number of females than males became less dependent upon other people. Although this item was phrased in general terms rather than with reference to some specific aspect of dependence, we might infer that the findings are in the expected direction. It has always been recognized that females are better able to adjust themselves to a new environment with the result that they can become more self-sufficient and independent in a shorter time than men. Once again, it is evident that there is still a proportionately large number of both men and women who have had to become dependent upon other people to a greater extent after three years at college. However, it is difficult to ascertain whether this dependence is in terms of behavioral foundation or a need for financial support. Judging from the material gathered in the interviews, it would appear that it is in terms of the latter.

3. A proportionately larger number of females have become more tolerant of immoral behavior while the opposite trend was evident for the males. At the same time, a proportionately larger number of males have become less tolerant of immoral behavior. The terms "immoral behavior" may have different connotations to different individuals, but these findings are in line with those gathered during the interviews. Both males and females, whether they were sophomores or juniors, felt that while they were at college they became more

tolerant of immoral behavior in terms of sexual behavior. The majority of them adopted a "live and let live" policy. This is not to say, however, that they were in agreement with this policy or would be willing to sanction it if it were in their power. They were, nevertheless, in the majority of instances willing to condone it.

It has been shown in a number of studies that men and women do not see quite eye to eye on certain subjects, especially those relating to sexual behavior and premarital relationships. In a recent survey of college students (Goldsen, 1960), a larger percentage of men felt that pre-marital sex relations are justifiable under certain circumstances in contrast to the percentage of women who felt this way (71% versus 62%). This tendency also appeared to be evident with the sophomores and juniors interviewed in this study. Nevertheless, it would appear that college females, especially juniors, even though they were not in agreement with certain moral and sexual behavior, did become more tolerant of it during their three years at M.S.U.. Whether this would be true at the majority of other colleges and universities throughout the country, we do not know.

The double standard, that is, the belief that it is permissable for men to "sow their wild oats" sexually but it is not permissable for women does not appear to hold up in either this study or the one conducted by Goldsen. None of the students interviewed provided any reason to lead one to accept the existence of a double standard among students insofar as sex is concerned. If anything, the fact that a larger proportion of males becomes less tolerant of immoral behavior might serve to substantiate the lack of the double standard.

Once again, why there is a sex differential is difficult to explain. Could it be that females, who are less stereotypic and more open-minded than men, are better able to adapt themselves to their new environment which some-

times has chastity as a theoretical rather than a practical base? Could it be because females are more closely supervised at home and when they get to college conclude that petting and necking are not as serious as they had been made out to be? Could it be that the sex standards for females are more amenable to change than they are for the men? Although many theses may be advanced to account for this phenomenon, the "answer" is unclear at this time.

4. As would be expected, a proportionately larger number of men felt that college should have as its major aim the preparation of the student for some profession or vocation. Although a proportionately larger number of females felt that college should do more than this, the difference between the sexes is not significant. It is interesting to note that for both the males and females, there is no difference between the expected and observed frequencies to the response "I possess the same amount of this quality." In other words, males come to college to prepare for a vocation and feel more strongly about this after three years while females are more interested in other things when they enter as freshmen and even more so when they are juniors.

This orientation of the males insofar as the function or value of a college education is concerned, should not be interpreted as a disregard for the non-vocational elements of a college education. A proportionately larger number of men and women felt that college should also stress a liberal-arts type of education, and there was no marked difference between the men and women on this point. The only difference was that males were a little more oriented towards vocational preparation than females. It would appear then, that Michigan State University, possibly by virtue of its required courses in the Social Sciences, Humanities, Natural Sciences, and Communications Skills had been successful in instilling an added dimension of the value of college in its students. This latter finding is substantiated when one looks at the

responses to items 9 and 10 in Table 29. For both males and females, there was the feeling that although college should prepare one for a vocation or profession, it should not do this to the neglect of providing students with a broad, general education.

5. There was a proportionately larger number of males than females, who, after three years of college attached more value to driving to get ahead as quickly as possible. This is not unexpected when one considers that it is the male who is more concerned with rising to the top of the vocational ladder as quickly as possible since he will be in the working force after he graduates from college. When one looks at the observed and expected frequencies for females on this item, doubts are raised toward the saying that behind "every successful man, there is a woman." It may be granted that women, in their own professional careers, are not primarily concerned with getting ahead as quickly as possible. But one might have anticipated finding a larger number who were driving to get ahead, even though their values were related to their future husbands more than to themselves.

Throughout the interviews, it was readily evident that both males and females (but especially males) were concerned with their security after graduation. Whereas both men and women had rather grandiose desires when freshmen, they became more realistic near the end of their college education. They began to attach more importance to securing a position that would offer them an opportunity for advancement rather than one which initially offered a high salary but which might result in the individual's remaining rather static in his advancement.

6. The analysis of responses to the item on "Idealistic outlook towards the future" raises many other questions which cannot be answered readily. Why was there a proportionately larger number of women who in essence became more

pessimistic? Are women more conservative than men? Were these college women who were juniors concerned about finding a mate, and were they afraid that since they hadn't already been married that they might be left a spinster? Could it be that college men or even men in general are overly optimistic while college women or women in general are more realistic? All that we know at this time is that a proportionately larger number of men were more inclined to be realistic insofar as the future was concerned.

The data presented in Table 29 also reveals some other interesting trends: A proportionately larger number of males and females after three years of college, indicated that they:

i. were more concerned about the future.

ii. had more respect for the views and opinions of other people.

iii. were more aware of their own goals in life.

iv. held more interest in world affairs (although they really were not fully informed about current world problems and issues).

v. felt that college should also stress a liberal-arts type of education.

vi. had developed more ability to accept new ideas.

vii. had developed a better understanding of the behavior of people.

viii. had greater confidence in their ability to deal with new problems.

ix. were more apt to accept a job for the satisfaction it has to offer rather than the salary it pays.

x. had a more realistic or less idealistic outlook towards the future.

xi. felt that a college education is necessary to succeed in the world.

xii. felt that they had more responsibility for their own education.

xiii. attached less importance to grades as measures of achievement (this might be due to the fact that these students had already completed three years of college and hence were not too concerned about grades as an obstacle to obtaining a degree).

xiv. had developed greater ability to get along with other people.

These findings, unfortunately, raise many more questions than they provide answers for. Consider, for example, the development of greater tolerance for people differing in race, creed, color, and religion. Did this change come about as a result of developing greater ability to get along with other people or as understanding better the behavior of other people? Although it is indeed difficult to ascribe casual relationships in many areas of investigation, it is extremely difficult to develop a cause-and-effect relationship in the social sciences. All that we know for sure is that certain changes occurred in these students during three years of college. Although these changes might also have come about if the students had not attended college, and previous research has shown this to be true in some personality traits (Plant, 1962), it is conceivable that college experience served as a catalyst to speed up such changes.

The Most Significant Thing Learned or That Happened Since Enrolled at Michigan State University

The most frequent responses given by students when asked at the end of their junior year what the most significant thing they had learned or that had happened to them since they came to Michigan State University was that they had learned to get along with all types of people. This might have been generalized to the living units in particular because it was probably in this area that the students had become most closely associated with students of other social and cultural backgrounds. At the end of the third year in college the students felt that it is most important that they know how to

live and work with other types of people--people of other social standards and cultural backgrounds. This particular phase of learning seemed to take precedence over any theoretical concepts which may have accrued from textbooks. It was most difficult for students to direct their thinking to one single experience which they had encountered during their college lives which had been most significant to them. Most of the students stated it was a combination of acquaintances or experiences which had probably been most meaningful to them, and when this was the case, it was difficult for them to pull out a single situation and cite this as being most important. The following responses listed in the order of frequency of response by the students may give a general over-all idea of the things which the students could pick out as being the most important, single, influencing factor: "Getting along with all types of people." "I can't cite a single experience, it is the combination of all of them." "I have learned to think and critically attack problems." "Learning the value of an education." "Growing up and becoming independent." "The choice of my major field of study." "Learning that I am not so smart as I once thought I was." "Meeting the boy I am engaged to or pinned to." "Living in a dormitory the first year." "I have become less snobbish by attending school here." "Learning that you are on your own here." "Being on athletic teams." "A course I have taken." "Sorority pledging." "Joining a fraternity." "Extra-curricular activities." "Nothing." "Learning to study." "Belonging to Honors College." "Raising my grade-point average to 2.0 after failing some courses the first term." "A professor, a resident advisor, or a close friend."

These interviews were held soon after President Hannah had made public his seven-point program for the future of the university.[16] One of the

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[16] The seven-point program, (now called the Educational Development Project) was concerned with how to deal effectively with increased enrollments without proportionate increases in staff and facilities.

questions asked of the students was, "Should students be encouraged to assume more responsibility for their education?" Many of the students had not heard of the program, and it had little meaning of them. However those who were aware of it felt that students could be encouraged to assume more responsibility for their own educational programs but that such a move should be concentrated within their junior and senior years in college. It was the general feeling that freshman and sophomore students need the rigid guidance and planning of specific curricula. Because of the inflexibility of high school programming, these students had had little opportunity to pursue educational programs on their own, and they felt that during the first year it would be relatively meaningless for them to go very far in this direction without the specific supervision of a faculty member. It was also expressed frequently that college students on the whole are not highly motivated for academic pursuits and that probably the few people who would assume entire responsibility or even a part of the responsibility for their education would be those who had little contact with extra- and co-curricular activities on the campus. These few, it was pointed out, would not be a general or a true sample of the college student. With the multiplicity of distracting activities on the campus, the students felt that they as individuals would have a difficult time planning independent study and following it through.

Summary

The results of the junior year findings indicate the following:

1. There is a significant improvement in critical thinking ability both from the freshman to sophomore year and from the sophomore to junior year, the greatest change taking place during the freshman year.

2. Students, on the average, become less stereotypic in their beliefs, less authoritarian, and more receptive to new ideas.

3. The emergent values such as relativism, hedonism, and conformity are more important to these students than are the traditional values.

4. Students tend to become more tolerant of people differing in race, creed, color, and religion.

5. Students tend to become more respectful for the views and opinions of other people even though they might not agree with them.

6. Students become more tolerant of unconventional dress, behavior, and manners.

7. Students are rather apathetic insofar as taking any interest in world affairs is concerned.

8. Students begin to value the advice and counsel of their families to a greater extent than they did as either freshmen or sophomores.

9. Students are highly resentful of any rules and regulations which they feel interfere with their independence.

10. Students are more concerned with obtaining a college degree than they are a well-rounded "education."

11. Some students are unsure that they have been fully prepared to meet the challenges and demands of the outside world.

12. Students, although recognizing the value of religion, do not feel that it is one of the prime goals in life.

13. Although both males and females became more tolerant and/or more understanding, of different races, creeds, colors, and faiths; changed their views as to the value of a college education; and became better able to get along with people, there are marked differences between males and females in the degree to which they change in certain areas such as tolerance of immoral behavior, independence, the major aims of a college education, and an idealistic outlook towards the future.

TABLE 31

Means and Standard Deviations for the Test of Critical Thinking, Inventory of Beliefs, and Differential Values Inventory for Males When Juniors and Seniors (N=179)

	Pre-Test (Juniors)		Post-Test (Seniors)				
Measure	Mean	S.D.	Mean	S.D.	r	t	p
CT	39.50	6.47	40.29	6.54	.80	2.56	<.05
IB	74.18	14.02	72.80	15.03	.85	2.30	<.05
DVI	32.98	7.92	32.94	7.43	.78	0.10	ns

TABLE 32

Means and Standards Deviations for the Test of Critical Thinking, Inventory of Beliefs, and Differential Values Inventory for Females When Juniors and Seniors (N=144)

	Pre-Test (Juniors)		Post-Test (Seniors)				
Measure	Mean	S.D.	Mean	S.D.	r	t	p
CT	39.06	6.67	40.08	6.42	.86	3.52	<.05
IB	77.01	15.50	77.69	16.95	.79	0.77	ns
DVI	30.00	6.26	29.45	6.71	.71	1.33	ns

CHANGES IN CRITICAL THINKING, ATTITUDES, AND VALUES DURING THE SENIOR YEAR OF COLLEGE

In order to learn the degree and direction of changes in critical thinking ability, stereotypic beliefs, traditional-value orientation, and meaning attached to certain religious concepts, those students tested as juniors and then retested as seniors (with the total group) were used as the population. This procedure then enabled us to see what changes, if any, took place between the end of the junior and senior years. Since there is no marked difference in the initial measures between those tested as juniors and those tested as seniors, we could make generalizations to the total population.

Tables 31 and 32 contain the means and standard deviations for the cognitive and affective measures used in the junior and senior year testing sessions. Tables 33 through 38 contain the rank order assigned to the six major religious concepts by the students in their junior year and then again when they were in their senior year.

From Tables 31-32, the following conclusions appear to be warranted:

1. Both males and females had significantly higher critical thinking scores at the end of their senior year in contrast to their scores at the end of their junior year. However, although the differences or increase in critical thinking ability during the senior year were statistically significant, they do not appear to be of practical significance. As will be discussed in a later section of the report, the major changes in critical thinking ability take place primarily during the freshman and sophomore years; the greatest over-all change takes place sometimes during the freshman year.

2. Although the males became significantly less stereotypic in their beliefs during their senior year, this was not the case for the females. Once again, we are faced with a value judgment: is a statistical gain a practical gain? Granted that, the mean change for males in the IB scores was 1.38 points, it would be very difficult indeed to consider this as of practical significance. This is not to imply that the change is a random fluctuation. It is not. But those interested in seeing stereotypy reduced should not feel complacent on the basis of this change.

3. For both males and females, there was a slight (but not statistically significant) movement along the emergent portion of the valus continuum. For all practical purposes, however, both males and females by this time had become stable in their value system. Whether this will continue or whether there will be a gradual movement towards the traditional values after graduation is open to further research.

4. There was no clear-cut pattern with respect to certain religious concepts either for men or women. In some instances, such as the Bible and Prayer, males and females were quite consistent in their beliefs when both juniors and seniors. In other instances, such as for Sin and Eternity, the pattern of agreement from the end of the junior year to the end of the senior year is less marked. In nearly every instance, however, the modal concept for both males and females was identical in the junior and senior years.

5. From the freshman to the senior year, there are evident changes for both males and females regarding their perception of certain religious concepts. These changes may be summarized as follows:

i. As entering freshmen, females tended to be more conservative and absolute than men insofar as their conception of the Bible is concerned. When seniors, both males and females were more liberal and relativistic in this concept.

ii. Men and women, both as freshmen and seniors, felt that Prayer is communication with God. In this sense, both were quite absolute at the beginning and end of their college education. This was also true for these students' concept of God, Sin, and Eternity.

Some Views and Perspectives of College Seniors

In the preceding section, we studied the changes that took place in the critical thinking ability, stereotypic beliefs, traditional value orientation, and religious beliefs of college students from their junior to senior year in college. In addition to the administration of the major battery of tests, these seniors (that is, those students who had been in attendance at Michigan State University for four years though they might not have attained senior standing) were also given an Experience Inventory which asked their reaction to 115 items. Some of the items required an appraisal

of college, some items referred to current political, social, and economic issues, and some items required an appraisal of the students' future. We will now consider these views in greater detail.

A. A Look at College

To many entering freshmen, college is a large, impersonal institution that looks at its students with frigidity and which thinks of its student body in terms of some combination of numbers imprinted on an IBM card. It is to be granted that many of the routine clerical tasks associated with registration and preparation of individual reports involve the use of IBM cards, but this is for the sake of economy and expediency, especially in the larger institutions.

Many students, when they enter college, also have certain misgivings about the demands that will be made upon them by the faculty, the rigor of academic standards, the quality of instruction and so forth. At the same time, many of these entering freshmen have preconceived views that the function or objective of college is primarily to prepare one for a profession or vocation.

What seniors think of their four years at college with respect to academic demands, contact with the faculty, the objectives of a college education, and so forth will now be considered in greater detail.

All students tested at the end of four years were asked to "Compare how you thought your four years of college would go with how you actually found it." A variety of variables was presented the students. The instructions were to rank each of the statements as, (1) more than I thought; (2) the same as I thought; and (3) less than I thought. The data are presented in Tables 39 - 41.

TABLE 33

Frequency and Rank-Order Correlations for Definition of Prayer for Males and Females as Juniors and Seniors

Definition	Males Rank Spg.'61	Males Rank Spg.'62	Females Rank Spg.'61	Females Rank Spg.'62	rho a	rho b	rho c	rho d
1. Prayersis a direct approach to God which will always bring results if there is enough faith.	4 (22)	4 (21)	3 (17)	3 (16)				
2. Prayer is communication with God.	2 (48)	1 (59)	1 (69)	1 (72)				
3. Prayer is a means of bringing man into a proper relationship with God.	1 (50)	2 (43)	2 (18)	2 (26)				
4. Prayer may be communion with God but how it is effected is not understood.	5 (12)	5 (16)	4 (14)	4 (12)				
5. Prayer is a means of relieving anxiety.	3 (33)	3 (26)	5 (13)	5 (11)				
6. Prayer can be equated with strong wishes or desires.	6 (8)	6 (10)	6 (12)	6 (3)				
7. Prayer is only a superstitious practice.	7 (6)	7 (4)	7 (1)	7 (2)	.965	1.00	.858	.893

a = rank order correlations for males Spg.'61 - Spg.'62
b = rank order correlations for females Spg.'61 - Spg.'62
c = rank order correlations for males - females Spg.'61
d = rank order correlations for males - females Spg.'62

TABLE 34

Frequency and Rank-Order Correlations for Definition of the Bible for Males and Females as Juniors and Seniors

Definition	Males Rank Spg.'61*	Males Rank Spg.'62	Females Rank Spg.'61	Females Rank Spg.'62	rho a	rho b	rho c	rho d
1. The Bible is inconsistent, contradictory and exaggerated in value.	6.5 (3)	6 (6)	6.5 (1)	6.5 (1)				
2. The Bible is a collection of myths.	6.5 (3)	7 (5)	6.5 (1)	6.5 (1)				
3. The Bible is a great literary work expressing religious philosophy.	1 (64)	1 (60)	2 (45)	1 (49)				
4. The Bible is valuable because of its inspirational effect.	3 (24)	4 (21)	4 (12)	5 (6)				
5. The Bible is an account of man's experiences with God.	4 (20)	3 (22)	3 (14)	3 (18)				
6. The Bible is God's revelation written by inspired men	2 (51)	2 (49)	1 (43)	2 (36)				
7. The Bible was dictated by God through the hand of man and is infallible.	5 (14)	5 (16)	5 (10)	4 (15)	.956	.919	.919	.956

*Spg.'61 corresponds to the Junior Year; Spg.'62 corresponds to the Senior Year

Numbers in ( ) are frequency.

TABLE 35

Frequency and Rank-Order Correlations for Definition of Man for Males and Females as Juniors and Seniors

Definition	Males Rank Spg.'61	Males Rank Spg.'62	Females Rank Spg.'61	Females Rank Spg.'62	rho a	rho b	rho c	rho d
1. Man represents no more than the highest order of evolution.	5 (12)	5 (16)	7 (2)	6.5 (2)				
2. Man is a biological organism with distinctive powers of memory and rational thought.	1 (58)	1 (60)	3 (28)	1.5 (38)				
3. Man is a psychological organism with spiritual needs.	4 (27)	4 (24)	4 (27)	3.5 (28)				
4. The nature and significance of man are not determinable.	6 (10)	7 (4)	5 (11)	5 (8)				
5. Man has both a body and a soul with the soul being the more essential.	3 (29)	2 (35)	1 (43)	3.5 (28)				
6. Man is the created object of God's love.	2 (35)	3 (29)	2 (29)	1.5 (38)				
7. Man is a descendant of Adam who was created from the dust of the earth.	7 (8)	6 (11)	6 (4)	6.5 (2)	.953	.831	.750	.794

TABLE 36

Frequency and Rank-Order Correlations for Definition of God for Males and Females as Juniors and Seniors

Definition	Males Rank Spg.'61	Males Rank Spg.'62	Females Rank Spg.'61	Females Rank Spg.'62	rho a	rho b	rho c	rho d
1. God is our creator and judge who observes everything that we do.	1 (71)	1 (68)	1 (54)	1 (47)				
2. God exists as a divine being.	4 (20)	4 (14)	3 (23)	3 (24)				
3. God exists as a supernatural power beyond man's comprehension.	2 (37)	2 (43)	2 (31)	2 (35)				
4. God probably exists but no one knows what he is like.	5 (9)	5.5 (7)	5 (4)	5 (3)				
5. The concept of God is a means of explaining the unknown.	3 (34)	3 (37)	4 (14)	4 (18)				
6. God is a projection of man's unconscious mind.	6 (6)	5.5 (7)	6 (3)	6 (2)				
7. There is no supernatural being.	7 (2)	7 (3)	7 (1)	7 (1)	.991	1.00	.965	.956

TABLE 37

Frequency and Rank-Order Correlations for Definition of Sin for Males and Females as Juniors and Seniors

Definition	Males Rank Spg.'61	Males Rank Spg.'62	Females Rank Spg.'61	Females Rank Spg.'62	rho a	rho b	rho c	rho d
1. Sin is a religious concept used to Create guilt feelings in man.	6 (12)	5 (15)	3.5 (13)	4 (11)				
2. Sin consists of behavior which is not culturally approved.	4 (26)	2 (35)	5 (11)	7 (5)				
3. Sin consists of a violation of the rights of others.	5 (19)	6 (13)	6 (5)	6 (6)				
4. Sin is a violation of one's conscience.	2 (32)	3.5 (27)	2 (27)	2 (34)				
5. Sin is a denial of our best nature.	7 (3)	7 (3)	7 (4)	5 (7)				
6. Sin consists of any thought, word or deed that interferes with a proper relationship to God.	1 (60)	1 (49)	1 (57)	1 (55)				
7. Sin consists of a wilful participation in worldly acts that transgress Divine Law.	3 (27)	3.5 (27)	3.5 (13)	3 (12)	.849	.849	.849	.420

TABLE 38

Frequency and Rank-Order Correlations for Definition of Eternity for Males and Females as Juniors and Seniors

Definition	Males Rank Spg.'61	Males Rank Spg.'62	Females Rank Spg.'61	Females Rank Spg.'62	rho a	rho b	rho c	rho d
1. After physical death there will be a judgment in which each man is sent to heaven or hell.	2 (36)	2 (41)	2 (23)	2 (27)				
2. All men will some day be responsible for their relationship to God.	1 (50)	1 (53)	1 (40)	1 (37)				
3. Heaven and hell are symbols of our relationship to God after physical death.	3 (28)	5 (14)	3.5 (21)	3 (20)				
4. Probably man does not have a separate identity after death, yet he participates in a kind of immortality.	5 (16)	3 (28)	3.5 (21)	5 (13)				
5. Man's immortality consists in the influence that he leaves behind him at death.	6 (13)	6 (12)	6 (9)	4 (15)				
6. The concept of eternity is a manifestation of man's fear of death.	4 (26)	4 (20)	5 (10)	6 (10)				
7. Our present life constitutes the whole of our existence.	7 (10)	7 (11)	7 (6)	7 (8)	.858	.867	.938	.715

TABLE 39

Seniors' Perception of College

Compare how you thought your four years at college would be with how you actually found it for.....	Percentage Responding					
	Males (N=635)			Females (N=439)		
	More	Same	Less	More	Same	Less
Time spent on studies	37	31	32	37	30	33
Contact with faculty	31	28	41	36	25	39
Participation in school activities	18	43	39	17	30	53
Dating	20	55	25	29	52	19
Prejudice because of social or religious background	15	51	34	17	47	31

TABLE 40

Seniors' Reactions to Classes, Instructors, College, and Grades

Statement	Percentage Responding			
	Males (N=635)		Females (N=439)	
	Agree	Disagree	Agree	Disagree
Generally, I found my classes pretty interesting	89	11	90	10
Most of my instructors were enthusiastic about their teaching	68	32	64	36
College is not as tough as I thought it would be	51	49	53	47
Getting good grades does not seem as important now as it once did	39	61	47	53

TABLE 41

Some Further Perceptions of College Seniors

Statement	Percentage Responding					
	Males (N=645)			Females (N=439)		
	Agree	Disagree	?	Agree	Disagree	?
College professors should be allowed to subscribe to any ideological or political belief they wish.	64	34	2	72	26	2
College professors should be required to take a loyalty oath.	35	60	5	31	64	5
College teachers, on the average, tend to be conservative.	45	45	10	41	53	6
College tends to liberalize one's views.	84	12	4	89	8	3
I am satisfied with my grades.	31	69	1	39	60	1
All college students should be required to take a series of general education courses.	68	29	3	61	38	1
A college education should place equal emphasis on academic and social development.	71	28	1	55	44	1
My friends have had more impact on my views and beliefs than have courses or instructors.	38	57	5	41	55	4
I know exactly what I will be doing in the immediate future.	40	58	2	55	44	1

TABLE 41 (Cont'd)

Some Further Perceptions of College Seniors

How dissatisfied would you be if you did not have an opportunity to have ready access to the resources below in your community?	Percentage Responding*		
	Quite dissatisfied	Somewhat dissatisfied	Wouldn't bother me
Opportunities to hear live performances of serious music.	22 (42)	33 (36)	45 (22)
Opportunities to see serious drama	19 (43)	33 (36)	48 (21)
Opportunities to see professional or college athletic events.	46 (28)	34 (36)	20 (36)
A good local art museum.	19 (46)	40 (37)	41 (17)
An excellent local bookstore.	65 (83)	24 (14)	11 (3)
Opportunities to engage in serious discussion of the basic problems and issues which confront our country.	60 (64)	30 (28)	10 (8)
A theatre which shows foreign and art films.	32 (46)	34 (34)	34 (20)
Opportunities for an active social life.	38 (74)	23 (19)	39 (7)
A good local library.	79 (93)	15 (6)	6 (1)
Excellent public schools.	91 (96)	4 (2)	5 (2)

* The first set of figures is for males (N=645); those in parentheses ( ) are for females (N=439).

The students said that they either spent more time studying than they originally anticipated or that they spent less time on their studies. About an equal percentage of both males and females responded in this manner. In other words, for some students (37 per cent of both males and females) college involved more study time than originally anticipated, while for others (32 percent of the males and 33 per cent of the females) less time was spent on their studies. It is interesting to note that there is no marked sex difference here even though females tend to obtain slightly higher grades than their male counterparts because of the "halo" effect in instructor grading practices. What those students who spent less time than anticipated on their studies actually did with their "spare" time is difficult to ascertain. For one thing, it is doubtful that all of them used this leisure time dating or participating in school activities. For example, although 32 per cent of the males said that they spent less time on their studies, only 18 per cent said that they participated more in school activities and only 20 per cent stated that they dated more. A similar tendency was evident for the females.

It is indeed difficult to ascertain the meaning attached to the word dating by these students, but it is readily evident that a larger proportion of the females "dated" more than they had actually anticipated. At the same time the converse was also true. Inasmuch as over one-half (53 per cent) of the females said that they participated less in school activities than they thought they would when they entered as freshmen, one might assume that females at least, spent their free time dating rather than partaking in school activities, as such.

Contact with the faculty is an issue that is frequently debated with equal fervor by both students and faculty alike. On the one hand, the faculty says that they are available while on the other hand, students say the opposite.

For this group, at least, a larger proportion of both males and females said they had less (in contrast to the proportion who said they had more) contact with the faculty in their four years than they originally expected. At the same time, the proportion was sizable which stated that they had more contact with the faculty than they had anticipated. Why there should be a difference in regard to this item between males and females is difficult to comprehend. Is it possible that the males expect more from the faculty than do the females? Is it conceivable that the curricula in which males enroll is such that frequent contact with the faculty is not possible because of large sections? Is it possible that females are better able to grasp the subject matter than males and hence do not require as much faculty contact? Are females more likely to solicit the advice of the faculty member than are males?

In the past, some critics of higher education have claimed that there is too much time spent on extra-curricular activities and not enough time devoted to the academic pursuits of college. As far as this group of seniors is concerned, they said that they spent less time on school activities than they had anticipated. A proportionately larger number of females than males stated this. It is difficult indeed to interpret this. Did these students initially expect to spend less time on their studies than they actually had to? If so, did this result in less time actually available to spend in leisurely pursuits? Did these students particpate less in school activities because they spent more time on activities not related to college? Whatever the reason or reasons, one thing is quite evident. They did not necessarily spend their leisure time dating.

Some students, when they arrive on campus as freshmen, fear that they will be ostracized because of religious and/or social class background.

In fact, a proportionately larger number of both men and women stated that they encountered less, rather than more, prejudice than they had expected because of their particular background. At the same time, it should be noted that 15 per cent of the males and 17 per cent of the females felt that there was more prejudice than they had originally anticipated. These findings are unexpected when one considers that Michigan State University does not cater primarily to one ethnic or social-class group.

Another section of the Experience Inventory questionnaire asked the students to respond to five items dealing with their reactions to instructors, classes, grade expectancy, difficulty of college, and time spent on studies. The instructions were to rate each statement along a four-point continuum with choices of strongly agree, agree, disagree, and strongly disagree.

As would be expected, nearly 90 per cent of the males and females were in agreement that, generally speaking, they found their classes to be pretty interesting. This is not unexpected since by the senior year the dropouts are removed and are not considered in the data analysis. It is also interesting to note that there was no marked difference between males and females (89% vs. 90% respectively). Whether or not anything can be done with the remaining 10 per cent is a debatable question. It is conceivable that many of these discontented students remain enrolled because it is expected of them or because of other pressure, and no matter what changes were made, they would still say that they were dissatisfied with their classes.

Although an overwhelming majority of the students said that they found their classes, on the average, to be interesting, this feeling was not accompanied by a similar rating of the enthusiasm of their instructors. Less than two-thirds of the males and females felt that their instructors were enthusiastic, and yet a proportionately larger number of them stated their classes

were interesting. This is indeed confusing. Is it conceivable that students rate the course material rather than the quality of teaching? Is quality of teaching independent of enthusiasm on the part of the instructor? Do students have a preconceived standard of enthusiasm?

While examining the student reactions to interesting classes or to the degree of instructor enthusiasm reveals little sex difference, as such, there were nevertheless marked curricular differences, especially in the responses which rated the interest quality of classes. Whereas 71 per cent of the students who were taking courses which are contained in the social sciences felt that their classes were interesting, and 68 per cent of those in technical curricula felt this way, only about 60 per cent in the physical and biological sciences and/or the humanities believed that their classes were interesting. One wonders why there should be such a discrepancy. Are instructors in the sciences and humanities unable to motivate their students? If so, is it because of the course material or the personality of the instructor? It would not appear to be the latter because there was nearly equal agreement (51-54 per cent) among student in the various curricula with reference to the enthusiasm of the instructors. If this feeling is due, in large part at least, to the students or types of students who are to be found in the physical and biological sciences and the humanities, what if anything can be done about it? Have these students selected the wrong major, and if so, how did that occur?

When askedabout the difficulty of college work a slightly larger proportion of the women (53 vs 51 per cent) than men responded college was not as tough as they thought it would be. Nevertheless, 37 per cent of the males and females found they spent more time on their studies than they originally anticipated.

When questioned as to the importance of getting good grades, less than 50 per cent of the group felt that getting good grades was less important to them now in contrast to their feelings as freshmen. What might be more significant than this is the fact that whereas 47 per cent of the females felt this way, only 39 per cent of the males felt that getting good grades was less important now. In other words, a proportionately larger percentage of males after four years of college still attach a great deal of importance to grades. Why this difference between the sexes exists is unclear.

Students were also asked whether they were satisfied with their grades. It was evident that the majority of them (65 per cent) were not. Clearly, a sizable majority of these students were dissatisfied with their grades, possibly because they felt that they should or might have done better. However, this does not necessarily imply that they feel that grades are important.

When these seniors at Michigan State were asked what happens to their views as a result of going to college, an overwhelming majority stated that college tended to liberalize their views. This was also evidenced in the interviews conducted during the sophomore and junior years.

According to Jacob (1957), "fewer seniors espouse beliefs which deviate from the going standards than do freshmen....to call this process a liberalization of student values is a misnomer. The impact of the college experience is rather to socialize the individual....." At times throughout this study at Michigan State, as well as in other research conducted since Jacob's report appeared, it is evident that many investigators have presented evidence that is in contradiction with some of Jacob's findings.

Although there may be a semantic difference which accounts for these findings at Michigan State deviating from those of Jacob, it is difficult indeed to imagine that this problem of semantics also pervades all of the other research studies.

B. A Look at Professors

What views do college seniors hold of the college faculty? Are faculty considered to be staid, conservative, liberal, easy-going, research-oriented rather than student-oriented? Should college professors be given unlimited academic freedom? Should faculty members be required to take a loyalty oath? What characterizes the good college teacher? These are some of the questions asked of these seniors.

College freshmen, to a large extent, have a rather drastic misconception of the typical or average college professor. Students, when they first arrive on campus, picture the average faculty member as very conservative and staid. They see him as being completely absorbed in his own thoughts with little or no concern for the student. They picture the faculty as being more concerned with research and publications than with teaching.

When these students were questioned as seniors, 44 per cent felt that college professors, on the average, tend to be conservative while 42 per cent felt the opposite. At the same time, 67 per cent of the group said that college professors should be allowed to subscribe to any ideological or political belief they wish and only 33 per cent said that college teachers should be required to take a loyalty oath. With respect to academic freedom, it would appear that these seniors generally felt that faculty members should not be required to subscribe to any test of their morality, integrity, or devotion to the principles of the Constitution. However, as will be discussed in a later section, the students did not want any instructor to attempt to indoctrinate his students in a particular political, religious, or ideological belief. In other words, these students demonstrated a "live and let live" philosophy in this regard.

When asked to select the most important characteristic of a good college teacher, there was substantially more agreement than disagreement both between males and females and among the various curricular groups. Although the former is not unexpected, one might have assumed that the good teacher for the engineer or physicist might not be considered the good teacher by the art or music major.

The rating assigned by students to each of the fifteen characteristics of a good college teacher is contained in Table 42.

The rank-order correlation of 0.86 (between males and females)[17] indicates that although there is not a perfect relationship, the degree of association is quite high. In fact, of those characteristics assigned a rank of 1 - 5, the only difference between the sexes for the first four highest rankings was an inter-change of one scale point. That is, the item ranked as most important by males (a good college teacher is soneone who makes his students produce) received the second highest ranking by females, and vice versa.

Students are not always adverse to work provided the work assigned appears to have some rationale and meaning. Even if they tend to be lazy at times, they desire a teacher who really makes his students produce. At the same time, these students were quite emphatic in their view that the instructor should have a thorough grasp of his subject matter.

The students wished to be judged and graded according to objective criteria--they did not want extraneous and irrelevant criteria such as looks and dress to enter into the assignment of a grade. Whether this feeling was precipitated by conformity in campus dress, especially for females (white sneakers and trenchcoats), is difficult to ascertain.

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[17] This is the rank-order correlation for the most important characteristic. The rank-order correlation for all 15 characteristics is 0.979.

TABLE 42

Characteristics of a Good College Teacher

A good college teacher....	Percentage Responding Males Agree	Males Disagree	Females Agree	Females Disagree
is active in civic affairs.	76%	24%	77%	23%
is active in campus activities.	85	15	78	22
is willing to discuss a student's career plans.	99	1	97	3
is willing to discuss a student's personal problems.	81	19	73	27
is a person who can teach in an entertaining manner.	90	10	81	19
is someone who sticks to teaching and does not act as a "buddy" to students.	46	54	50	50
is active in religious affairs.	58	42	57	43
is someone who really knows his field.	88	12	96	4
does not give out a lot of reading assignments.	23	77	18	82
is willing to help students decide on how they should stand on things like politics and religion.	24	76	25	75
is someone who judges a student on his work and not on how he dresses or looks.	96	4	99	1
is soneone who really makes students produce.	94	6	96	4
is someone who is willing to give the student a break when the student doesn't do his work.	31	69	28	72
permits students to take part in deciding the course objectives.	63	37	57	43
does not attempt to indoctrinate his students in a particular political, religious, or ideological belief.	94	6	87	13

Oddly enough, a larger proportion of males than females wanted a teacher who not only is competent in his field, but who can teach in an entertaining manner. In other words, they did not want a thespian or "ham" who is ill-prepared, but would like the lectures to be interesting, lively, and thought-provoking. This trait was more frequently rated as being important by those males in the technical and/or other curricula. The former is understandable when one considers the complexity and dryness of Calculus, Electrical Circuits, Anatomy, and Pathology that engineers and veterinarians must study. The latter group, however, those who were in such areas as business and public service, may be no more than a reflection of the students in that particular major.

Both males and females felt that it is very important that the instructor not attempt to indoctrinate his students. Although these students readily admitted changes in their values and attitudes, and conceded that college tends to liberalize one's views, they felt that these changes did, and should, come about as a result of experiences rather than from an overt indoctrination by the faculty. This feeling was especially prevalent for the males enrolled in the social sciences and the females enrolled in the physical and biological sciences. The former is understandable but not the latter.

It is interesting to note that for both males and females, and for students majoring in the technical, scientific, social science, and humanities curricula, there was such homogeneity in their concepts of good college teacher and a poor college teacher. These students did not characterize a good college teacher as one who attempts or who is willing to help students decide on how they should stand on such things as religion and politics; generally did not think that a teacher is a good teacher because he is willing to give the student a break when the student doesn't do his work; nor did they think too highly of the teacher who does not freely associate with students.

In summary, we can say, that for the most part, a good college teacher was characterized as

> A person who is active in both civic and campus affairs; is willing to discuss a student's career plans and/or personal problems but, at the same time lets the student make the final decision regarding politics and religion. He is well-versed in his subject matter, teaches in an entertaining manner, makes the students produce, and grades rather objectively.

The Objectives of College

Some students believe that a college education should "prepare you to think for yourself...should teach you to become independent...should prepare you for a specific vocation or profession...should teach you how to get along with people." These are some quotes taken from the interview protocols of students when they were freshmen.

When all responses were categorized and quantified, a general concensus of opinion was that college should

> "make you more independent, and help you learn to get along with other people. It should teach you to be tolerant of the views and opinions of others. It should educate you thoroughly in your major field of interest. It should help you to decide on what your major goal in life should be. It should teach you to do things and bring out leadership qualities. It should broaden your perspective in life and provide extensive social activities but let the student decide what he wants and how much he wants."

From this concensus it is readily evident that there is no single aim or purpose of a college education. At the same time, it can be seen that the objectives of college for one student need not be those of another student. For example, the student in a technical curriculum such as Engineering or Veterinary Medicine might attach more importance to specialized goals whereas students in Social Science and the Humanities might stress the general or liberal-arts goals in a college education.

In an attempt to survey the students' reactions to the importance of various goals or objectives in education, a list of 26 objectives (10 related to vocational or specialized training and 16 related to a global, general type of education) were given to this group of seniors. The question asked was as follows:

> Below is a list of objectives which may apply to various courses and experiences in college. You are asked to rate them as to their importance to you now.

Each student was asked to rate each of the 26 objectives as Very Important (essential that this be achieved), Average Importance (desirable that this be achieved), and Little Importance (not important that this be achieved). Scale values of +2, +1, and -1 respectively were assigned to each rating. The distribution of scores for each objective is given in Table 43.

The most generally accepted objective was that college should teach one "to express his thoughts effectively." This was true for the total group as well as for the males and females separately. However, this was not the one that was universally accepted by students in the different majors. For example, males in the technical curricula (engineering and veterinary medicine) and in the scientific curricula (biological and physical sciences) felt that the most important objective of college is to teach the student "to acquire and use the skills and habits involved in critical and constructive thinking." This opinion was also shared by those females in medical technology and the sciences.

The prevalent view held by many that the students in technical and vocational curricula are "anti liberal-arts" does not appear to be supported by the findings of this study. On the contrary, those students in the humanities (fine arts and music) whom one would normally have expected to

rate the liberal-arts goals highly did not in fact rate them as highly as did those students in the other curricula. This was so for both males and females.

Of the five goals rated (in degree of importance) by all students, four of them were general-education goals and only one was a vocational or specialized goal. The first two most important goals were:[18]

> To express one's thought effectively.
>
> To acquire and use the skills and habits involved in critical and constructive thinking.

We might therefore regard these results as an indication of the relative importance of an academic system of values in contrast to a social set of values. However, for these students at least, social value as portrayed in "to learn to get along with people" was ranked fourth in importance. In terms of the number choosing either of the academic values or the social values as being Very Important, the difference becomes quite striking--84 per cent chose the former while only 75 per cent chose the latter.

Subordinate to the academic set of educational values was what might be termed the utilitarian value of a college education -- "to master certain techniques applicable to one's vocation or field of special interest." In terms of the weighted score, it had a ranking of 3; the percentage of students indicating that this was a Very Important Goal was 78 per cent in contrast to 84 per cent who felt it was Very Important to stress the purely academic values in college.

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[18] Actually in terms of frequency of those choosing either of the academic values as Very Important there is no perceptible difference. Whereas 900 seniors chose the former (84%), 896 seniors chose the latter (84%). The difference in over-all ranking was the result of the weighting scheme used which also considered the number choosing each item as of average or no importance.

Student opinion appeared to focus mainly on these three aspects of the goals or objectives or role of college. One should not lose slight, however, of the other goals which were stressed to a lesser degree of importance but which still indicate that our institutions of higher education have more than one major role to play. Some of these other goals are to attain a satisfactory emotional and social adjustment (ranked sixth); to understand the ideas of others (ranked seventh); and to understand other cultures and other people (ranked fourteenth). The only goal rejected by a majority of students, regardless of sex and curricular orientation, was the purely practical training feature "to develop certain manual skills."

As would be expected, student opinion varied from curriculum to curriculum. For example, males in the technical and science curricula stressed the relative importance of an academic set of educational values whereas males in the humanities (music, literature, and fine arts) stressed the importance of the social or interpersonal educational values.

We have noted that whereas there is some initial antagonism to the 45-hours of general education courses that students at Michigan State University must complete in order to graduate, this antagonism or apathy begins to wane as the students become seniors and even more so after these students have graduated from the institution. As far as these students are concerned, two-thirds (66 per cent) felt that all college students should be required to take a series of general education courses, while only 32 per cent did not feel that this requirement should be satisfied. Although we have no data regarding this point when these students were freshmen, judging from previous research, it would appear that these students (as did their predecessors) had as seniors a greater appreciation for a well-rounded education.

TABLE 43

The Objectives of College

Objective	Total Weighted Score** Males	Females	Total
*To master a classification of knowledge in a field	948(9)	633(15)	1581(12)
*To master certain techniques applicable to one's vocation or field of special interest	1117(3)	777(3)	1894(3)
*To acquire specific information and techniques in preparation for further study in a particular field	929(10.5)	651(14)	1580(13)
To acquire and use the skills and habits involved in critical and constructive thinking	1156(2)	781(2)	1937(2)
To develop a code of behavior based on democratic and ethical principles	811(19)	601(19)	1412(19)
To express one's thought effectively	1161(1)	790(1)	1951 (1)
To recognize the fact of world interdependence	781(21)	612(18)	1393(20)
To learn to get along with people	1083(4)	739(4)	1822(4)
*To acquire a degree of expertness in a special field	792(20)	525(23)	1317(21)
*To experience a realistic sampling of one's chosen vocation	911(13)	681(9)	1592(9.5)
To attain a satisfactory emotional and social adjustment	991(8)	737(5)	1728(6)
To understand other cultures and people	861(16)	678(10)	1539(14)
*To know the major developments in a vocational field or field of special interest	887(14)	617(17)	1504(16)
To understand the ideas of others	1012(7)	712(7)	1724(7)
To habitually apply scientific thought to the discovery of facts	704(23)	357(25)	1061(24)
*To bring up to date one's knowledge in a special field of interest or a vocational field	929(10.5)	663(11)	1592(9.5)

* Vocational-oriented goal. All others general-education goal.

TABLE 43 (cont.)

The Objectives of College

Objective	Total Weighted Score** Males	Females	Total
*To become proficient in one's chosen field of work	1026(5)	686(8)	1712(8)
To understand and enjoy literature, art and music	571(25)	576(20)	1147(23)
To understand one's physical and social environment	865(15)	661(12.5)	1526(15)
*To develop certain manual skills	434(26)	253(26)	687(26)
To move smoothly from high school to adult independence	751(22)	562(21.5)	1313(22)
To develop a broad general outlook and familiarity with a variety of subjects	928(12)	661(12.5)	1589(11)
To develop knowledge and understanding making possible a more effective choice of one's life work	1018(6)	736(6)	1754(5)
To acquire knowledge and attitudes basic to a satisfying family life	828(18)	625(16)	1453(18)
*To develop the ability to do significant independent research	657(24)	380(24)	1037(25)
To maintain and improve one's own health	831(17)	562(21.5)	1493(17)

* Vocational-oriented goal. All others general-education goal.

* The total weighted score is computed by assigning a value of +2 to Very Important, +1 to Average Importance, and -1 to Little Importance and taking the sum. The MAXIMUM weighted score for males is 645 times +2 = 1290; for females 436 times +2 = 872 (this based on the assumption that the goal is rated VERY IMPORTANT by all males and/or females.

Numbers in parentheses refer to rank-order.

In summary, we can say that students, regardless of sex and major, are of the opinion that college or a college education should stress the academic, social, and practical values in that order. Although there are differences between males and females and among those in the different curricula, these differences only become obvious when one looks at the subordinate aspects of the value of a college education.

Political, Social, and Economic Attitudes

For some time now, college students have been accused of being apathetic, conservative, and self-centered. Many critics of higher education have exploited the antics of college students to the degree that they have distorted, at times, the true fabric of these students. There have been instances such as telephone talkathons, bed-pushing, and goldfish swallowing but this is not too markedly different from the behavior of young adults who do not attend college.

The responses to a variety of social and political issues are presented in Table 44. For the purpose of this analysis the strongly agree and the agree responses were considered as one category while the disagree and strongly disagree were considered as another. From this table, the following conclusions appear to be warranted:

1. Only 38 per cent of these seniors felt that Red China should be admitted to the U.N. It is equally interesting to note that 10 per cent of these students reserved the right to form no opinion. This tends to suggest that college does not always result in students forming an opinion on some particular issue even though this issue has been discussed for some time.

2. Slightly more than one-fourth (28 per cent) said that the United States should prevent known communists from entering or visiting this country. The majority, however, did not hold this view and felt that communists should be permitted to speak on campus.

TABLE 44

Political and Social Views of College Seniors

Statement	Percentage Responding					
	Males (N=645)			Females (N=439)		
	Agree	Disagree	?	Agree	Disagree	?
Red China should be admitted to the U.N.	36	55	9	40	49	11
The United States should prevent known communists from entering or visiting this country.	29	69	2	27	70	3
Communists should not be permitted to speak on our campus.	27	70	3	26	71	3
Medical care for the aged should be provided by the Federal government.	68	27	5	69	23	8
The United States should continue nuclear testing in the atmosphere.	66	31	3	38	57	5
Petting and deep-kissing are appropriate sex outlets for unmarried college students.	66	27	7	44	49	7
A person in a skilled trade is worth as much to society as one in a profession.	69	28	3	74	23	3

3. Although many of these seniors indicated in personal interviews that there was a threat to the safety and security of our country by the Russians, only 54 per cent were in favor of continuing nuclear testing in the atmosphere. It would appear that these students felt some other method/s must be devised to deal with Russia.

4. About two-thirds (68 per cent) of the students felt that medical care for the aged should be provided by the Federal government.

5. From the interviews, it was relatively evident that there was a double standard operating insofar as cheating on examinations is concerned. In other words, although many students did not condone "cribbing", they would only report an incident if they felt that it might affect their grade because the normal curve was disturbed. When these seniors were asked if they should report another student cheating on an examination, only 42 per cent responded in the affirmative. A larger number (48 per cent) stated that they would not report an instance of cheating.

6. Honesty no doubt has a different connotation to different people. When these seniors were asked whether they would take a towel as a souvenir from a hotel, 29 per cent replied that they would while 69 per cent said they would not. Whether or not this attests to the basic honesty of college graduates is a matter of conjecture.

7. For some time now, the moral and ethical aspects of pre-marital coitus has been an area of intense concern. At the time of writing, there is a series of lectures being conducted by a panel of doctors, lawyers, ministers, and sociologists regarding pre-marital sex relations. From all indications this series of lectures is being well attended. Although the students were not questioned about intercourse, per se, one might interpret or at least extrapolate the findings. Over one-half of the seniors (57 per cent) felt that petting and deep-kissing are appropriate sex outlets for unmarried college students.

8. In a rather indirect fashion, we were able to ascertain the feelings of these seniors with respect to the image they hold of the skilled laborer in contrast to their image of the college graduate. It is rather interesting to note that the majority of these college seniors had a positive image of the non-college graduate and felt that a person in a skilled trade is worth as much to society as one in a profession. Only 25 per cent of these seniors held a rather negative image of the skilled laborer.

College Seniors Look Toward the Future

Emerging from the interviews conducted with the sophomores, and even more noticeably from the interviews with college juniors, was the finding that many of these students were uncertain of the future, the type of job or vocation they would be involved in, and other matters that they would have to decide upon before graduation. A few students were even unsure of their choice of major.

Inasmuch as it was felt that students with different personalities might hold different views, the data pertaining to job expectations were analysed separately for four different personality typologies. These data are found in Tables 45 - 48.[19]

TABLE 45

Proportion of Seniors Indicating Career Plans Upon Graduation

Subculture	Career Job or Military Service	Graduate Training	Non-Career Job	Other or Don't Know	N
Nonconformist	47%	31%	5%	16%	185
Academic	60	20	5	15	362
Vocational	72	13	2	12	276
Collegiate	65	12	10	13	104

As may be observed in Table 45, it was the members of the non-conformists subculture whose greatest orientation was toward intellectual pursuits. In contrast, those students who were vocationally-oriented, most often anticipated either career or military service upon graduation. A proportionately larger number of the collegiate group indicated that they planned to work at a

[19] The writer is grateful to Mr. Benjamin Hodgkins who analysed these data.

full-time civilian job which would not be their career field. This would suggest that more members of this group than of the other groups would take a job only for the sake of having a job and would most likely change jobs quite frequently during their lifetime. This is not unexpected when one considers that these students are primarily at college to have a good time.

TABLE 46

Proportion of Seniors Indicating Type of Job Desired Upon Graduation

Subculture	Moderate Income + Good Security	Good Income + Some Security	Excellent Income, Little Security	N
Nonconformist	35%	37%	28%	192
Academic	34	34	32	383
Vocational	49	27	24	283
Collegiate	24	38	38	109

Table 46 presents the data pertaining to the type of security which college students desire. When these seniors were asked to choose the type of job they would enter if they had a choice, the responses usually fell into a particular pattern. While the vocationally-oriented students were most interested, as a group (49 per cent) in a job which pays a moderate income but which offers a great deal of security, the collegiate-oriented students, as a group, were more concerned with making money than were the other cultural subgroups. The small concern of this group for security and the future is not to be unexpected. It will be recalled from Table 45, that the collegiate group were somewhat more likely to select a job that would not be in their career field; if they were so disposed, they would have little concern with the security of the position. It is especially interesting to note that for

all four subcultures, there was a certain degree of pioneering evident. That is, about 25 per cent or more of the students in each of the groups were willing to take a job that pays a person extremely well if he makes the grade, but which might result in losing everything if he doesn't produce.

TABLE 47

Proportion of Seniors Indicating Nature of Job

Subculture	Teaching or Service	Research	Administration	Other	N
Nonconformist	53%	18%	16%	13%	193
Academic	53	10	25	12	387
Vocational	41	16	34	9	283
Collegiate	42	7	42	9	109

The data presented in Table 47 is of special interest in that it helps to clarify some of the findings presented in Table 46. By and large, a proportionately larger percentage of the collegiate group envisaged that administration would be the most important part of their long-run career work. This of course would tend to support the thesis that the collegiate group was more concerned with manipulating and getting along with individuals than were the other groups. That is, they were outer or other-directed in their behavior. Conversely, both the academics and the non-conformists, tended to emphasize either teaching or service as a primary expectation of career activities. Generally, these findings point toward a value orientation that is "humanistic" and "intellectual" for the non-conformist subculture, and "materialistic" for the collegiate, with the academic and vocational subcultures tending to fall somewhere in-between.

TABLE 48

Percentage of Students Indicating Most Significant Agency or Person in Making Career Decision

Agency	Percentage Responding Males (N=603)	Females (N=405)
Vocational/Psychological Tests	17	18
Academic Adviser	20	21
Other Faculty	24	18
Vocational/Guidance Counselor	4	7
Parents	17	18
Other family members	5	6
Peers	13	12

There is no doubt that the majority of students confide or at least confer with "others" for assistance in a variety of matters. Needless to say, this would be especially true insofar as career plans or decisions are concerned. Table 48 contains the percentage of students who responded to the one person or event that they considered played the most important part in their career decisions. With only two exceptions, there was no appreciable sex difference in the percentage of students responding to any given item. The two exceptions are: (1) a proportionately larger percentage of males than females (24 vs.18 per cent) replied that discussions with faculty members were most influential, and (2) a slightly larger percentage of males than females (7 vs. 4 per cent) felt that their vocational/guidance counselor played an important role in their career decisions. In any event, facilities related to discussions with counselors and with family members other than parents played a minimal role in students' career plans. The latter is understandable, but not the former. Why do students not utilize the counseling center? Do they feel

that counselors are unsympathetic? Do students feel that the counseling center is reserved primarily for mental cases?

It is also of interest to note that whereas males felt that faculty members played a more important role than their academic adviser, the converse was true for females. In any event, for both males and females, a proportionately larger percentage felt that the faculty as compared to the adviser, played a very important role in their career decisions. At the same time it is evident that for a small group of students the peer group had a strong impact upon their future career plans.

CHAPTER V

FACTORS ASSOCIATED WITH CHANGES IN ATTITUDES AND VALUES

We have already seen that there are marked changes in critical thinking ability, attitudes, and values occurring from the freshman to the senior year. Previous research has demonstrated that the degree and extent to which attitudes and values are modifiable depends upon the nature of the experience, the type of contact, the personality makeup of the individual, the group's approval of new ideas, and the individual's perception of the outcome.

Contradictory evidence has also been presented regarding the impact of college on student attitudes and values. Jacob (1957) reviewed research at different institutions which used different instruments but which were all concerned with learning what impact, if any, college had upon student values and concluded that neither courses, instructors, nor curricula had a marked impact on student values. Hall (1950) reported that certain programs are more effective than others in affecting social values. Brown and Bystrum (1956) and Plant (1962) found that time spent at college had little bearing on authoritarian changes. Plant (1958), however, in another study using high school seniors, reported a significant decrease in ethnocentrism for high school seniors who attended college but not for those who did not attend. Although Plant's findings appear to be contradictory they might be explained on the basis of different populations, different experiences, different peer groups, and so forth.

Although it is difficult to ascribe the changes noted in this study directly to college experiences (whether they are the formal, academic, or the informal, extra-curricular activities), it seems reasonable to hypothesize

that college can and does influence the direction of change, albeit the impact of experiences is different for some individuals.

When we think of a college, we must think of a community--a community which is a miniature society with its unique traditions, beliefs, and customs. Living in this community is a heterogeneous group of students who have come from a variety of home backgrounds and have brought with them to college certain established traits and customs. In addition, we have a faculty which may be considered as being homogeneous in some respects but which might be very heterogeneous insofar as their attitudes and values are concerned. Also in this college community are groups or cliques or student subcultures, each of which may have its own "press" and its own mores. Hence, the new freshman can be subjected to a variety of forces when he arrives on campus.

When the student arrives on campus, he is already a group product. While he is at college, he is involved with other personalities and new experiences and now becomes a member of a student sub-culture with its atypical mores. Whether or not this new set of experiences will have any influence upon the student depends upon a variety of factors, some of the most important being his needs and his personality. In order to effectively study the college culture-matrix, we must consider two factors: (1) the culture the student brings with him, and (2) the culture of the college community. Our research to this point has indicated that there are significant socio-cultural-educational differences in attitudes and values among the members of the freshman class at Michigan State University--there are differences among Protestants, Roman Catholics, and Jews; there are differences within the various Protestant sects; there are differences among students who come from homes which are diverse in terms of parental education and occupation; there are differences among students who come from the farm, village, small and large city, and so forth.

This section of the report will be concerned with studying the relationship between changes in attitudes and values and the culture a student brings with him to college--that is, background factors such as religion, nativity of parents, father's occupation, and level of parental education. In addition to studying the relationship between the nature of attitude and/or value change and selected socio-cultural-educational factors, we were interested in learning whether it might be possible to isolate some experiential factors in college that might explain the changes that occur in students at Michigan State University during their freshman, sophomore, junior, and senior years. As before, the data will be considered separately for each of the four years.

Hypotheses Tested

1. There is no significant relationship between changes in value orientation and some selected biographical characteristics.

2. There is no significant relationship between changes in stereotypic beliefs and selected biographical characteristics.

3. There is no significant relationship between the type of value change and selected college experiences.

4. There is no significant relationship between the type of change in stereotypic beliefs and selected college experiences.

Method

Identification of subjects who changed in their attitudes and/or values. In the course of this longitudinal study on attitudes and values, a battery of tests was administered to the total freshman population previously described in Chapter 2. both at the beginning and end of the freshman year. At the end of both the sophomore and junior years, random samples of this class were given the battery of tests. At the end of the senior year, the same battery was administered to the total class still enrolled at Michigan State University. As seen in Table 2 , freshman year test-retest data were available for over 91 per cent of the eligible population, while for the sophomore

and junior years usable retest data were available for over 80 per cent of the eligible sample selected. At the end of each testing session, "changers" were identified and more detailed analyses performed. Since the method employed to identify these "changes" was the same for each of the retest periods, it will be dealt with in this portion of the report only.

In order for a student to be considered a "changer" his actual post-test score had to be at least 1.5 standard errors of estimate above or below his predicted post-test score. His predicted score was determined by regression analysis. Regression equations were set up separately for the attitude and value measures. In addition, since there were significant sex differences in our measures on both the pre- and post-tests, separate regression equations were computed for males and females. By means of this method it was possible to identify three groups of students for each measure: those who changed in an upward or positive direction, those who changed in a downward or negative direction, and those who did not undergo a true change as we defined change. In all the analyses of "changers," we were guided by the above definition.

FRESHMAN YEAR CHANGERS

The number of changers on each of the measures is presented in Table 49. The total group of changers was used in the analysis pertaining to the relationship between change and selected biographical characteristics. A random sample was used in the analysis pertaining to the impact of college experiences. Because of initial sex differences, the data for males and females were analyzed separately.

Method. A preliminary analysis of data (Lehmann and Dixenberry, 1959), suggested that the following biographical characteristics be studied: locale (size of home community), type of secondary school attended, size of high

school graduating class, level of father's education, religious affiliation, level of mother's education, and father's occupation.

Knowing the nature or type of change undergone in this period, we used chi-square to test the hypotheses.

TABLE 49

Number and Type of "Changers" In Attitude and Value Measures During Freshman Year

Type of Change	Males	Females	Total
Became less stereotypic	72	61	133
Became more stereotypic	71	70	141
Became less traditional-value oriented	78	65	143
Became more traditional-value oriented	68	74	142

Findings and Discussion. The results of the chi-square analysis are presented in Tables 50 and 51. From these data, one can conclude the following:

1. For both males and females, there was a significant relationship between change in value orientation and (a) religious affiliation, and (b) level of father's education.

2. For both males and females, neither level of mother's education, father's occupation, locale, and type of secondary school attended bore no significant relationship to change in value orientation.

3. For both males and females, there was no significant relationship between attitudinal changes on the measure of stereotypy (I.B.) and selected biographical characteristics.

It might be hypothesized that inasmuch as there were significant socio-cultural-educational differences in attitudes and values among the students

TABLE 50

Summary of Chi-Square Values for Relationship of Change in Attitude and Value Measures and Selected Biographical Factors for Freshman Females

Biographical Factor	df	X^2	P
Size of home community	3	1.162*	NS
	3	4.579*	NS
Type of high school attended	1	2.005	NS
	1	.031	NS
Size of HS graduating class	3	.372	NS
	3	3.746	NS
Level of father's education	3	1.897	NS
	3	4.330	NS
Level of mother's education	3	3.763	NS
	3	2.975	NS
Religious affiliation	2	3.386	NS
	2	8.080	<.05
Father's occupation	4	7.708	NS
	5	10.194	NS

* The first set of figures for each factor relates to the analysis of change in attitude of stereotypy; the figures directly below are for the analysis of changes in value orientation.

TABLE 51

Summary of Chi-Square Values of Changes in Attitude and Value Measures and Selected Biographical Factors for Freshman Males

Biographical Factor	df	X^2	P
Size of home community	3	.974*	NS
	3	3.790*	NS
Type of high school attended	1	2.538	NS
	1	.072	NS
Size of HS graduating class	3	1.355	NS
	3	5.077	NS
Level of father's education	3	4.851	NS
	3	9.940	<.05
Level of mother's education	2	1.108	NS
	3	4.203	NS
Religious affiliation	2	1.435	NS
	2	6.541	<.05
Father's occupation	6	7.753	NS
	6	8.953	NS

* The first set of figures for each factor relates to the analysis of change in attitude of stereotypy; the figures directly below are for the analysis of change in value orientation.

attending Michigan State University (Lehmann, 1962), the home background and environment of the student would play an important role in determining the nature or direction of changes in attitudes and values that took place during the student's first year at college. Our findings suggest that only two of the biographical factors appeared to be operative--religious affiliation and level of parental education. These factors operated both for males and females and in the same direction. In addition, the changes that occurred were only in terms of value orientation and did not apply to changes in stereotypic beliefs, even though the attitudinal changes after one year were statistically significant.

What might be the most significant finding of this study is that college, with its new culture matrix and new peer groups does not really change an individual's values in a new direction but reinforces what he already believes in. In other words, insofar as groups differentiated by religious affiliation and level of father's education were concerned, those students who were initially emergent-value oriented became more so; the students who were more traditional-value oriented as freshmen were even more traditional-value oriented after their freshman year. Although this only applies to certain groups differentiated by religious affiliation and level of father's education, it does suggest that for some students at least, the freshman year at college results in a reinforcement of the beliefs and ideals held before coming to college. Whether this is due to the college experience per se, or is just reflection of maturation is not certain at this time.

As entering freshmen, both Jewish males and females were significantly more emergent-value oriented than Protestant and Roman Catholic freshmen. Although the direction of change for the total freshman group (N = 2219) was to an emergent-value orientation, the Jewish students became even more

emergent-value oriented during their freshman year while the Protestant students became more traditional-value oriented and Roman Catholic students were relatively stable. Although one might expect that the tenets and teachings of the Roman Catholic church would account for the relative stability of Roman Catholic students, it is indeed difficult to explain why the same experiences affect one religious group in one way and another religious group in an opposite direction. One explanation the researchers on this study offer is that students of a particular religious faith (possibly because of a similarity of values) integrate closely and therefore reinforce existing beliefs and ideals.

It is also possible that the degree and direction of change for Jewish students can be explained in terms of their living as a minority in a culture that is predominantly Christian. Since Jews cannot depend upon the state to maintain their cultural traditions, it is necessary for the home, synagogue, and other agencies to provide means of preserving their culture. In addition, because of the discriminatory practices that have always plagued the Jewish people, some of the fundamental religious values have been replaced by or brought to the support of the goals of success and adjustment. Hence, factors operating in the total cultural milieu help to explain why Jewish students were most emergent-value oriented (outer-directed) to begin with and even more so at the end of their freshman year at college.

Protestant students, on the other hand, are the majority in the American culture, have not been subjected to too much discrimination in this country during the past few centuries and are therefore more likely to display the "Protestant ethic."

As entering freshmen, those students whose father's education did not go beyond high school were more traditional-value oriented than those students

whose fathers attended college. Is it conceivable that this is so because the values fostered and practiced in upper, middle, and lower social-class homes differ? If level of father's education is an index of social class, and if college attendance appears to be related to a leaning toward the emergent-value orientation, this would explain in part at least why such differences were found. What is difficult to explain is the direction of the changes that occurred during the freshman year. Those students who were initially more traditional-value oriented became more traditional-value oriented; those students who were initially more emergent-value oriented became more emergent-value oriented.

Why should these students who found themselves in a new culture with a different value norm have changed in such a way as to reinforce their prevailing beliefs? Is it conceivable that these students, because of their home background attached themselves to a peer group that reinforced their values, and hence we find changes that are in the <u>same</u> rather than the opposite direction?

There does not appear to be any clear-cut answer as to why some biographical factors appear to be related to value changes but not to changes in stereotypic beliefs. Is it possible that values are more transitory in nature and are not as firmly ingrained as stereotypic beliefs? Is it conceivable that our courses and the contacts students have while at college are directed towards an examination of values but not of attitudes? As yet, we do not have any answers. Further analysis of the data may reveal that Jewish students tend to come from homes where the father has attained a higher level of education. However, whether it is this or the cultural heritage that these Jewish students bring with them that is related to change is analagous to the "chicken-and-egg" problem.

Since the culture the student brings with him as manifested in certain biographical characteristics plays a minimal role in determining the nature and extent of attitude and value changes that occur during the freshman year of college,[19] it was felt that an attempt should be made to examine what impact, if any, the culture of the college community, per se, had upon these "changers" and for students in general. This was done by means of interviews with a group of 146 students interviewed during their sophomore year as well as by means of a questionnaire administered to a random sample of 413 sophomores at the end of their sophomore year. We will now consider the data gathered from the interviews.

THE RELATIONSHIP
BETWEEN THE NATURE OF ATTITUDE AND/OR VALUE CHANGE
AND THE IMPACT OF SOME SELECTED COLLEGE
EXPERIENCES

Method. For this portion of the study, all students who had changed during the freshman year in both measures (40 male and 42 female) and 54 who had changed on only one measure were interviewed. In this latter group, we chose at random 8 males and 5 females who had become less stereotypic; 6 males and 7 females who had become more stereotypic; 6 males and 9 females who had become less traditional-value oriented; and 7 males and 6 females who had become more traditional-value oriented. In addition, 5 males and 5 females who had not changed on either measure were interviewed.

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[19] Very few of the biographical factors appeared to play an important role in determining the degree and extent of changes in attitudes and values. This, however, might be due to the complex interaction of many of the factors, and hence, the impact of the culture the student brings with him appears to be minimal. On the other hand, it is conceivable that the college matrix played a more important role.

The interviews which lasted from 45 minutes to over 3 hours were informal and relatively unstructured. We were concerned with exploring 10 different areas or experiences which might have had some impact upon student behavior. A priori, it was decided that we would concentrate on the 10 areas which previous research suggested might explain any changes that occurred. These 10 areas were as follows: instructors, courses, social activities, cultural activities, dormitory life, fraternity or sorority membership, conformity, rules and regulations, living away from home, and friends. These experiences or contacts ranged from the formal, academic type to the informal, extra-curricular experiences. A leading question asked in each interview was as follows:

> In the two years* that you have been at college you have had an opportunity to engage in a variety of activities and have many different types of experiences. Of your many different experiences, which do you feel had some impact on you--which do you think might have modified or reinforced your perspective or outlook on life.

If the subject did not cover one or some of the 10 areas spontaneously, the interviewer asked those that were omitted. At the end of the interview, we asked each subject whether there was anything else on which he wished to comment.

In addition to learning what experiences had had an impact on these students, we were interested in learning the degree of impact. Therefore, each interviewee was asked to rate the degree of impact of each experience on a scale ranging from no impact (0) to very much impact (4). For purposes of analysis little or no impact answers were considered as one category and some, much, or very much impact were considered as another. These data were then analyzed by chi-square.

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* In the junior-year interviews, it was "In the three years.....

Findings and Discussion. The data presented in Tables 32 and 33 indicate that:

1. For the males, there was a significant relationship between attitudes toward rules and regulations and change in stereotypic beliefs. Those male students who became less stereotypic more often mentioned that the rules and regulations at MSU had a marked impact on their behavior. These students, when confronted with regulations that had to be obeyed tended to become less rigid and authoritarian in their relationships with others. Whether this is a lasting change or not or whether one is the result of the other is not too clear at this time.

Other than this, for both males and females, different types of college experiences appear to have played an insignificant role insofar as changes in attitudes are concerned.

2. For females, there was a significant relationship between changes in values and impact of (a) a course or courses, and (b) cultural activities. Those students who became more traditional-value oriented indicated that their course(s) had an impact on their behavior. One explanation of this might be that if higher education has any impact on its students, it causes them to think. This thinking no doubt results in a questioning of existing values, ideals, and convictions. And possibly, this rethinking results in an added importance being given to the values of honesty, thrift, self-denial, work and responsibility, and a positive outlook toward the future. Since the impact of the instructor was in the same direction but not significant (significant beyond the .10 level), the researchers wonder whether it might not have been a combination of both courses and instructors that resulted in a change in values. One wonders, however, why this was so for the females who changed but not for the males. Are females more susceptible to change? Is it

TABLE 52

Summary of Chi-Square Values for the Relationship Between Changes in Attitudes and Values and Selected College Experiences for Freshman Males

Experience	df	χ^2	P
Instructor	1	1.684*	NS
	1	.018	NS
Course/s	11	.003	NS
	1	.110	NS
Social activities	1	.992	NS
	1	.216	NS
Cultural activities	1	.032	NS
	1	.267	NS
Dormitory life	1	.086	NS
	1	.008	NS
Sorority-fraternity membership	1	.063	NS
	1	.078	NS
Rules and policies	1	6.438	<.05
	1	.007	NS
Friends	1	.089	NS
	1	5.886	<.05
Living away from home	1	3.085	NS
	1	.003	NS
Conformity	1	.499	NS
	1	1.944	NS

TABLE 53

Summary of Chi-Square Values for the Relationship Between Changes in Attitudes and Values and Selected College Experiences for Freshman Females

Experience	df	χ^2	P
Instructor	1	2.281*	NS
	1	3.634*	NS
Course/s	1	.077	NS
	1	7.835	.01
Social activities	1	1.890	NS
	1	.010	NS
Cultural activities	1	.080	NS
	1	4.936	<.05
Dormitory life	1	2.079	NS
	1	.021	NS
Sorority-fraternity membership	1	1.012	NS
	1	.008	NS
Rules and policies	1	.409	NS
	1	1.374	NS
Friends	1	.125	NS
	1	2.179	NS
Living away from home	1	.062	NS
	1	.737	NS
Conformity	1	1.891	NS
	1	.706	NS

* The first set of figures for each experience are for the changes in attitudes of stereotypy; the figures directly below are for the changes in value orientation.

because females are less stereotypic, rigid, and dogmatic? Are males, who are significantly more rigid and authoritarian than females, committed to a value orientation while females are still searching?

The researchers are unable to explain why those females who became more traditional-value oriented stated that cultural activities had an impact on their behavior. Did the cultural activities per se, have an impact, or did more of these students avail themselves of these activities?

3. For the males, there was a significant relationship between changes in values and the impact or influence of friends. Those males who became more emergent-value oriented stated that their friends had an impact on their behavior. One explanation that can be offered is that the total group was moving from a traditional-value orientation to an emergent-value orientation. Therefore, if the pressure of the peer group was such that conformity was necessary, it is understandable why friends might have had an impact on these students. However, why females were not influenced by close friends is unclear at this time.

Although colleges assume that college instructors and courses will have some impact upon students' attitudes and values, our study does not bear this out completely. This might be so for a variety of reasons beyond those reported by Jacob (1957). Some of these reasons are: (a) the full impact of the students' formal academic experiences are not fully realized while he is in college and therefore cannot be reported or measured, (b) so few students take the same courses from the same instructors that the impact of courses and instructors is seldom a topic for daily conversation, or (c) there is no one course or instructor that has a marked impact on the behavior of students but only a general impact from the aggregate, (d) there are no separate or distinct experiences which affect the behavior of students.

It is clear that significant changes in attitudes and values do occur during college years. This is true not only for students on this campus but for those attending other colleges and universities. However, we have been unable to single out of college experiences one factor to explain changes in attitudes and values. These changes may be a function of the person's maturity or personality, a function of the times we live in, the direct result of college experience, or a combination of one or more such factors. More intensive research in this area is needed to try to identify not only the factors that might be operating but also the processes by which these factors operate.

Impact of Instructors

In the majority of cases, one or two instructors were mentioned by the "changers" as being exceptionally good instructors, or as nice, helpful people to know. Several mentioned professors who had helped them acquire a better perspective of the value of a college education and/or who had encouraged them to continue in college when they had been considering dropping out of school. This had no bearing on the quality of their teaching but it seemed to satisfy a need of the student for security and reinforcement. Very few students, however, pointed out that the instructor had changed any basic viewpoints which they possessed when they entered his class.

There were numerous statements of disappointment regarding the quality of instruction at the college level. Some mentioned that college professors probably knew more than high school instructors but that they weren't as good teachers. (Was this a comparison of the amount of individual attention which they had received instead of the actual quality of instruction?) Many students had anticipated that the college professor would be a more intellectual person and that more time would be spent in small group discussions with the professor, both in the classroom and outside. Many stated that they felt the prime

interest of the instructor is research and that only a few, exceptional faculty members are concerned about students as individuals and what or whether they learn. Parenthetically, an editorial was published in the campus newspaper implicating the majority of faculty members as being more interested in research than in teaching. The consensus of opinion expressed by the students was that this research emphasis ultimately results in personal gain for the professors involved.

There was no reluctance on the part of the students to mention names of those instructors whom they felt were wasting their (the students') time in class. They were not as concerned about the instructors' remembering their name (although several mentioned this as being desirable) as about the fact that there was no time to talk with the instructor outside of class. They admitted that if you made an effort to go to his office he was willing enough to help you "but there was no special note of encouragement to do this."

Points that the students emphasized as contributing to good teaching were:

> "He always anticipated what is bothering the student and knew the material so well that he could clear up any problem. The best thing about his teaching was that he would show the students the 'why' of the system of just how to do the problem." (Math. instructor)
>
> "A terrific instructor and a terrific person. His method of teaching is wonderful. . .class is mainly discussion with a lot of outside reading. He makes students want to do things for him. . .he really isn't strong on compulsory attendance but students want to attend class. Students respect him and don't take advantage of his fairness. 'He made me feel that I was an adult and let me prove that I could act like one.'"
>
> "Instills interest in students. She is so sincere and enthusiastic herself that students can't help but feel this way."
>
> "This instructor made the most impression on me because he remembered my name, where I am from, and what my interests are."

"He has a critical mind and is a good lecturer. He is stimulating and you enjoy going to class."

"He provokes thought during each class session. He doesn't just stand and lecture. He asks questions and if you don't know the answer he would keep asking questions and make you think through the answer."

"An excellent instructor. . .the course was very informal but interesting and valuable. She incorporated studies, readings, and personal experiences that made this more easily understood."

"A vibrant person. . .exudes his own interest on the subject, He is brilliant and makes the student feel subordinate but this is so stimulating. He has a definite system to his class. . .everything is well organized and it made the work a lot easier. He made each person feel that he knew them personally and was interested in them."

These quotes seem to be characteristic of the qualities which the students felt are desirable in instructors. However, as may be noted above, none of these students mentioned that they could detect a personal change because of associations with these people. Only one or two said. . ."I feel that I am a better person for having known him" or . . ."Because of Mr. _____ I now believe ------ instead of ------- as I did when I entered his class." Very few mentioned that they really believed that this person influenced a definite change in them.

Other Influential Persons

This was an area in which students had difficulty answering with any degree of specificity. After some thought most of them gave a typical answer. . ."I have made a lot of friends here at college but I'm not sure that any of them have influenced me in any way." A relatively small number indicated difficulties in living with roommates; conversely, few expressed the feeling that they had changed in any way because of this association. One or two who were living with older students felt that these people had helped with decisions and adjustment problems because of their increased maturity and experience.

Only one or two students indicated that they had changed their major area of interest because of contact with a certain instructor in that area. It was not possible for these students to distinguish between a particular influencing force which an instructor had exerted and the impact which their association with him in the classroom may have brought about. When questioned more intensely about this change in major they would usually reply " _____ was such a wonderful instructor and made the subject so interesting that I'm sure that this is the area in which I will be most happy."

People in administrative or authoritative positions in the dormitories and other living units, such as housemothers, resident advisers, etc., were not considered as being influential in any way. In fact, on the Experience Inventory administered during the re-test period these factors, when mentioned at all, were indicated as having a negative effect or no effect.

Several students who were pinned or engaged to someone who was also a student indicated that this person had been influential. This influence was usually of an educational nature, i.e., one sophomore girl engaged to a graduating senior decided that she would drop out of school when they became married and moved to another part of the country during the following summer. He encouraged her to investigate the possibilities of transferring to another school, and she became enrolled in another university in the city in which they would be living.

The married male students gave due credit to their wives for their encouragement and understanding. They felt that marriage had increased their responsibilities but had concurrently strengthened their goals and the values of a college education. These students appreciated the number of people who were making their education possible and gave the greatest amount of credit to their wives.

Several mentioned helpful and enlightening contacts in the counseling center, mental hygiene clinic, with their employer, etc. But again these contacts were usually in the category of advice giving, encouragement, or something of this nature which helped the student to be more effective in a certain situation but actually didn't influence him to become different or think differently in any way.

The influence of the ideas of other students in dormitory bull sessions, coffee and coke dates, etc., appeared to provoke thought to the degree that ideas and attitudes may have changed. In these situations no one was telling the students that they had to change in any way. Such experiences, however, presented viewpoints of their peers and caused them to evaluate their own ideas and values which had been inculcated by their respective backgrounds. From the students' descriptions of these sessions they apparently attacked some very philosophical topics. As one student expressed it, "Dormitory life is not all bridge and the Kingston Trio." This student speculated that religion was the most prevalent topic of discussion in the dormitory. For the student who is not entirely satisfied with his present knowledge of other cultures or who does not really know "what he believes" these may be some of the most meaningful experiences on the college campus. They may stimulate him to investigate certain areas more fully, to readjust his current thinking to points of view which are more acceptable to him or to the society in which he expects to live, or to become more tolerant of the beliefs and values of others.

A typical response by many of the students interviewed was that dormitory life gave one an opportunity to mix and live with persons of a variety of different races, creeds, colors, religions, ideals and beliefs. Some typical comments were:

> "It is a wonderful place and opportunity to observe others and see what makes them tick."

"It has made me more considerate of others."

"It increases your knowledge and understanding of all people."

A question which remains unanswered, however, is whether these changes are due to learning, per se, or to the establishment of communication of affect from those individuals with whom students come into contact in the living unit. In other words, are the dorms, and "bull sessions" just a projection of class discussions, a fanning of a spark struck in class, or are they just means of breaking down barriers between human beings and establishing rapport and a comfortable feeling of belonging? Although Jacob (1957) reported rather negative evidence insofar as the impact of courses and instructors on student values is concerned, it is still conceivable that they may have been responsible for starting a chain reaction. One might go so far as to conceive the formal academic environment as the mixture of two elements, courses and instructors, with the dormitory sessions acting as the catalyst -- the reaction being reversible but too complex and interacting to be separated once the process has begun.

Courses

As was the case with instructors, there were one or two courses in which each student expressed the most interest. The one department most frequently mentioned was Humanities (this was true for both courses and instructors). Once again a question or two might be posed. Why is this the most frequently stated preference? Is it because history as a subject is familiar but that much of the material in this course is excitingly different? Is it because the course is one of four required of all students? Is there more personal appeal by this type of course as compared to Mathematics, Business or Home Economics? Does the student find substitution for, reinforcement of, or facts which cause him to question the basic beliefs and values which have been inculcated by his background and training?

Some of the stated reasons for ranking this course first are:

> "I have liked Humanities best. In fact, I like the whole history course. . .it gives a better understanding of how things really are."
>
> "The course in Humanities is so much more interesting than just the dry facts of history. . .you can apply this knowledge to so many things."
>
> "I loved the subject material in Humanities. I learned so many things that I hadn't known before. . .it just increased my general knowledge. It gives me an idea of what other areas of thinking are based upon."
>
> "Humanities is a fine course. It gives a good broad basis for all further education."
>
> "The Humanities are probably the best courses so far. . . they have increased knowledge in cultural areas."
>
> "It has given me an understanding of how we came to be in the Western civilization."

The majority of the students said that they felt that they had not been changed in any way by a course which they had taken in college. Some of the specific remarks were:

> "I feel that I have gained a vast amount of knowledge from the courses I have taken at MSU but none has influenced my thinking in any way."
>
> "I can't think of any course that changed my opinions or attitudes in any way."
>
> "I haven't had any basic courses here that I've really liked. However, I think that they are good for everyone. . . I haven't been influenced by any of them."
>
> "No courses here have interested me so far."

Extracurricular Activities

It is difficult to generalize on the number and types of activities in which these students participated. It seemed to be almost an individual situation and the only general categories into which the student could be fitted were those who had sorority and fraternity membership, those who worked

and who had no time for any extracurricular activities, those who obviously had as much or more concern for extracurricular activities as for academic pursuits, and those who were well organized and capable, who ranked high scholastically, and were active in extracurricular pursuits.

Some had high regard for campus organizations and others felt that they were useless inasmuch as they accomplished little and were dominated by the administration.

The central value which the students attributed to organization membership was the "opportunity to learn to work with groups of people."

Analysis of Freshman Experience Inventory

At the end of the freshman year, an inventory was administered to the 2,245 students in the retest sample in an attempt to identify the role or impact of different types of experiences or contacts on their behavior. From the list of 20 such experiences, the student was asked to choose the five which he felt were most important and the five felt to be least important. The students were told to disregard those with which they had no contact. By limiting the number of choices, it was hoped that only those which were truly significant (either positively or negatively) would be considered. This analysis is based upon the responses of a random sample of 500 students.

The number of significant and insignificant responses are presented in Table 54. Once again, it is readily evident as was seen from the analysis of the interview protocols that courses, instructors, or formal academic-type experiences played a minimal role in the lives of these students at least when they are freshmen. Once again, the informal experiences as manifested in the student sub-culture matrix appeared to be most important to these students.

TABLE 54

Responses of a Random Sample of Freshmen Males and Females to Those Experiences Which They Felt Were Important or Insignificant to Them During Their Freshman Year

Experience	Number Responding Males (N=253) Significant	Males Insignificant	Females (N=247) Significant	Females Insignificant
Social Science	28(16)	72	14(19.5)	76
An instructor	52(10)	64	62(8)	59
Person dated	87(4)	49	127(2)	30
Athletic events	112(3)	45	56(9.5)	38
Natural Science	34(15)	78	34(14)	74
Friends here	167(1)	2	181(1)	0
Counseling Center	23(19)	100	24(15)	92
Grill, Kewpee, etc.	18(20)	143	14(19.5)	158
Resident Adviser	26(17.5)	101	19(17)	122
Bull-sessions	81(6)	50	77(5)	35
Lecture-Concerts	42(14)	94	47(11)	73
Fraternity-sorority	51(11.5)	66	56(9.5)	61
Extracurricular Activities	84(5)	44	71(7)	44
Communication Skills	26(17.5)	104	16(18)	123
Reading	51(11.5)	46	43(13)	35
Church	74(8)	40	87(4)	27
Where I Live	56(9)	60	46(12)	44
Close friend	75(7)	5	73(6)	6
Parties	45(13)	91	25(16)	83
Family	125(2)	9	124(3)	9

Numbers in parentheses are rank-order.

SOPHOMORE YEAR CHANGERS

From the group of students tested at the end of their sophomore year, "changers" as previously described were again identified and interviewed. The number of changers on each of the measures is presented in Table 55. The total group of changers was used in the analysis pertaining to the relationship between change and certain selected biographical and demographic factors. A random sample of 89 students who had changed on one or more of the measures was used in the analysis pertaining to the impact of college experiences. The data were analyzed separately for the males and females.

TABLE 55

Number and Type of "Changers" in Critical Thinking, Attitude, and Value Measures

Type of Change*	Number		
	Males	Females	Total
Became more traditional-value oriented	4	6	10
Became less traditional-value oriented	10	17	27
Became more dogmatic	9	16	25
Became less dogmatic	11	7	18
Became better critical thinkers	10	15	25

* 7 males and 15 females changed in two or more areas of critical thinking, attitudes, and values.

Reference to Tables 56 and 57 indicates, as did the same type of analysis for freshman year "changers," that the culture a student brings with him to college by virtue of his home background plays a minimal role in determining the degree and extent of changes in attitudes and values. Whereas in the freshman year, religion and level of parental education were the only two

TABLE 56

Summary of Chi-Square Values of Change in Attitude and Value Measures and Selected Biographical Factors for Sophomore Females

Biographical Factor	df	X^2	P
Size of home community	3	0.451	ns
	3	0.511	ns
Type of high school attended	1	1.513	ns
	1	0.133	ns
Size of HS graduating class	3	2.801	ns
	3	0.986	ns
Level of father's education	3	2.484	ns
	3	4.480	ns
Level of mother's education	3	3.218	ns
	3	3.124	ns
Religious affiliation	2	3.491	ns
	2	3.239	ns
Father's occupation	4	0.159	ns
	5	0.111	ns

* The first set of figures for each factor relates to the analysis of change in attitude of stereotypy; the figures directly below are for the analysis of changes in value orientation.

TABLE 57

Summary of Chi-Square Values of Change in Attitude and Value Measures and Selected Biographical Factors for Sophomore Males

Biographical Factor	df	X^2	P
Size of home community	3	0.153	ns
	3	1.369	ns
Type of high school attended	1	1.540	ns
	1	2.088	ns
Size of HS graduating class	3	1.443	ns
	3	1.632	ns
Level of father's education	3	5.700	ns
	3	4.574	ns
Level of mother's education	2	4.364	ns
	3	0.693	ns
Religious affiliation	2	2.527	ns
	2	2.734	ns
Father's occupation	6	0.654	ns
	6	0.649	ns

* The first set of figures for each factor relates to the analysis of change in attitude of stereotypy; the figures directly below are for the analysis of change in value orientation.

factors related to changes in value orientation, in the sophomore year there was no single background factor which appeared to be associated or related to changes in attitudes and values.

Reference to Tables 58 and 59 indicates as did the analysis for freshman year "changers," that very few experiences can be isolated to account for changes in one's behavior. It should be recalled that these individuals did undergo a change in personality development and did not hesitate to remark that they were different as juniors than they were as freshmen. Nevertheless, they were unable to attribute the changes that came about to any specific experiences or types of contacts with the exceptions that courses for females and conformity for males were associated with a decrease in dogmatism.

We will now consider the results of the interviews with sophomore "changers" in greater detail.

Courses

As was evident in the sophomore year interviews conducted with freshman "changers," very few of the students were able to indicate precisely how a particular course or courses influenced them, although many readily admitted that they had undergone some change in their attitudes and values while at college.

It is interesting to note that both the freshman and sophomore year "changers" predominantly indicated that the Humanities course left the most lasting impression upon them. Some of the following comments will help to identify the feelings of students regarding courses which they had taken at Michigan State:

"The humanities have strengthened my religious beliefs."

"From many courses, I learned not to be prejudiced."

"Humanities gave new ideas to compare with my basic beliefs."

TABLE 58

Summary of Chi-Square Values for the Relationship Between Changes in Attitudes and Values and Selected College Experiences for Sophomore Males

Experience	df	X^2	P
Instructor	1	1.378	NS
	1	1.314	NS
Course	1	0.640	NS
	1	0.002	NS
Social Activities	1	1.371	NS
	1	1.244	NS
Cultural Activities	1	3.309	NS
	1	0.111	NS
Dormitory Life	1	2.347	NS
	1	0.656	NS
Fraternity Membership	1	1.778	NS
	1	0.080	NS
Conformity	1	5.104	<.05
	1	0.002	NS
Living Away From Home	1	3.277	NS
	1	0.162	NS
Rules and Regulations	1	1.422	NS
	1	0.079	NS
Friends	1	0.684	NS
	1	1.314	NS

The first set of figures for each experience are for changes in dogmatic attitudes; the figures directly below are for the changes in traditional-value orientation.

TABLE 59

Summary of Chi-Square Values for the Relationship Between Changes in Attitudes and Values and Selected College Experiences for Sophomore Females

Experience	df	X^2	P
Instructor	1	2.424	NS
	1	0.011	NS
Course/s	1	5.621	<.05
	1	0.864	NS
Social Activities	1	3.366	NS
	1	0.521	NS
Cultural Activities	1	3.348	NS
	1	0.119	NS
Dormitory Life	1	0.350	NS
	1	0.804	NS
Sorority Membership	1	1.528	NS
	1	0.115	NS
Rules and Policies	1	0.014	NS
	1	0.022	NS
Friends	1	1.163	NS
	1	0.011	NS
Living away from home	1	1.811	NS
	1	0.123	NS
Conformity	1	2.347	NS
	1	0.168	NS

The first set of figures for each experience are for changes in dogmatism; the figure directly below are for changes in traditional-value orientation.

"Introduction to Business probably is the one which influenced my choice of major."

"The section on evolution in Natural Science made me re-examine my religious beliefs."

Although a variety of other courses were mentioned by name as having been important, a closer perusal of the interview protocols indicated that the impact of these courses was more related to changes in study habits "Psychology has improved my study habits" or choice of major "Economics 200 is the one which helped me change my major" than they were to changes in basic or prevailing attitudes and values.

As indicated earlier, there were a few students, who although they recognized a change in their attitudes and values from the freshman year, were not able to indicate the impact of any course on this change in behavior. Some of the typical comments from these students were:

"I couldn't name one course that seemed important to me."

"I have enjoyed many courses, but they have had no particular impact upon me."

At the end of the junior year when these interviews were conducted, only a few students were able to look back upon courses which they had taken in their freshman and sophomore years and say "as a result of having taken this particular course from this instructor I became so interested in regular class assignments that I finally decided that this was the area in which I would like to major and therefore changed my major." Whether this change of major (values in a sense) in any given instance was the result of the course or of personal identification with a particular instructor is difficult to ascertain.

There is no ready explanation for the fact that Humanities was mentioned most often by many of the students as the <u>one</u> course that had an impact upon

them. Time after time, these students did not mention courses in their major as having had some impact upon their beliefs, ideals and values. Possibly this was because these courses are not designed for this purpose. However, the four general education courses which all students were required to take did appear to have an impact upon the personality development of these students; the least popular course among the four was Communication Skills.

Instructors

As in the sophomore year interviews, the students continued to state that they failed to see how their association with instructors could possibly have "changed" their attitudes and values. They mentioned instances of excellent teaching, of having been motivated to continue on in college when discouraged and ready to leave, and of having thoroughly enjoyed an individual instructor and the course which he was teaching. But, for the most part, they were unable to express any change which they felt came about in themselves because of their association with an instructor.

Following are some of the comments made by students when asked to recall an instructor or instructors and the impact they might have had upon them:

> "I was influenced by the approach to scientific and religious beliefs. Now I find that both can be considered. This was the result of a particular instructor I had."
>
> "The instructor I remember best and respect the most flunked me and made me see how hard I would have to work in my major field."
>
> "From class experiences I have developed a realization of the importance of a college education. I'm not sure this could be attributed entirely to the instructor or whether it was for the most part, from the material in the course itself."
>
> "The instructor who played the greatest role in my life taught me to become more liberal and more dogmatic."

These and other such comments indicate that from the students' point of view, both instructors and courses might play a small part in altering, modifying, or reinforcing existing attitudes and values. For the most part, however, experiences or contacts other than that of a formal academic nature might play a more significant role.

Conformity

Although it is well-recognized that the peer group can play an important role in the life of the student, the analysis of data from the sophomore year interviews suggest that an over-all conformity is not necessary on a campus of this size, nor does one have to change in order to find a congenial group to which he can belong. Following are some comments made by these students:

"I have been influenced by clothes customs but not by ideas."

"I have not had to change."

"I have conformed to the things I like to do."

It is also readily evident that the majority of students felt that you need not conform or change your basic attitudes, values, beliefs, and interests in order to satisfy the "need for belonging," and many felt that conformity was more closely related to dress and mannerisms than it was to behavior patterns.

Dormitory Life

Once again, the most common response relative to living in a dormitory (and to a lesser extent this can be extended to all types of living units, including fraternity and sorority houses) was that it affords an opportunity for "gaining a better understanding of people and developing a greater acceptance of the differences among groups of people." There were many instances where students stated that they felt their associations and contacts in the living unit were more beneficial than the material they learned in a course.

For example, although the Social Science course focuses in the first term on social psychology and sociology, comments such as "the bull-sessions in the dormitory strengthened my views about many things--it was a far better learning situation than many of the classes I attended." "The dormitory was the main force in changing my views about prejudice, rights, etc." "I have been involved in many instances of racial bias which have had a negative effect upon me."

The statistical analyses in both the sophomore and junior year interviews failed to show a significant relationship between the nature and degree of attitude and value change and dormitory living experiences. Nevertheless, the material gathered from the interviews tends to substantiate the thesis that these experiences do play an important role in the lives of students even though they were not able to specifically isolate them from the aggregate of other types of experiences.

Fraternity and Sorority Membership

In both the sophomore and junior year interviews, there was no perceptible evidence that fraternity or sorority membership had any impact upon student personality except that it might have resulted in these students conforming to a greater degree than unaffiliated students. The greatest value perceived by students to be derived from this type of association was mostly in regard to social advantages--"knowing the right fellows (or girls) to date. . .becoming more socially adept. . .serving as a valuable contact in future life (for the men especially)." No doubt, fraternity or sorority membership would tend to reinforce prevailing attitudes and values and for some might even modify or alter their attitudes, values, beliefs, and interests. However, either the students interviewed were not influenced in their behavior by this type of association, or they were unaware of any change which

could be attributed to these experiences, or they did not wish to admit that any changes which came about in them might have been the result of their membership in these organizations.

Other Factors

From discussions on their participation in social activities and their attendance at the Lecture-Concert Series, it was readily evident that although students were engaged in them to some extent and derived pleasure from them, these experiences had little impact upon the students. Some students commented that:

> "The aggregate effect of these has probably influenced me, but I don't know how."
>
> "I have attended only for relaxation. . .no particular effect has resulted from this."
>
> "The interpersonal relationships with different people have been most influential to me in relation to social activities."

However, all in all, only two or three of the more than 200 students interviewed during the sophomore and junior years indicated that because of their attendance at cultural events they developed a better appreciation (or for that matter a lesser appreciation) for the arts, literature, and music. The few who did feel these cultural activities were important were often music majors.

Friends, especially close friends resulting from the relationships in college (and no doubt, this factor could also have been present had the student not attended college), were a most important factor in the lives of students. However, many students were reluctant to admit that they had changed in any appreciable way as a result of these friendships. Some did admit, however, that they became more liberal and tolerant of people as a result of knowing a given person or a group of persons. No doubt, the

discussions and "bull-sessions" were a contributing factor to this growing tolerance which might have occurred in the absence of any close friends. Some of the students did mention that they were probably influenced indirectly by their friends more than they were able to recognize at this point. Some even remarked that if in two or three years we were to ask them who the most influential person or persons had been, they would undoubtedly mention the names of some of their classmates. Lasting friendships appeared to result most frequently from first or second year dormitory roommates or from roommates in the fraternity or sorority house. The persons most frequently mentioned as being "close friends" were roommates, resident advisers, persons whom they are currently dating, and fraternity or sorority associates.

Analysis of Sophomore-Year Experience Inventory

In the spring of 1960, an experience inventory containing 50 different types of experiences or contacts was administered to a random sample of the original population still enrolled at Michigan State University. The experiences or contacts ranged from the formal, academic to the informal, non-academic. Students were asked to select the three experiences which they felt had had a positive influence on them, the three which had had a negative influence upon them, and the three which had had no perceptible impact on their behavior. The students were told to disregard those activities, events, or persons with whom they had had no contact.

Reference to Table 60 indicates as did the previous analyses of data for both the freshmen and sophomore years, that the non-academic experiences seem to have played a more important role in the lives of these students than did formal contacts with instructors, courses, or cultural events. This result of analyses is in the expected direction when one considers that such things as friends, persons dated, family, and church are experiences

TABLE 60

Self-Perceived Impact of Various Experiences and Contacts on Attitudes and Values of College Sophomore Males (N=197) and Females (N=213)

Type of Experience	Number Responding*			
	Positive	Negative	Neutral	Total
Communication Skills 111	3 (1)	15 (5)	22 (24)	40 (30)
Communication Skills 112	3 (1)	6 (6)	14 (10)	23 (17)
Communication Skills 113	6 (1)	10 (8)	13 (15)	29 (24)
Natural Science 181	4 (4)	7 (10)	8 (1)	19 (15)
Natural Science 182	3 (1)	9 (15)	7 (9)	19 (25)
Natural Science 183	4 (1)	16 (36)	16 (7)	36 (44)
Social Science 231	11 (8)	13 (9)	13 (11)	37 (28)
Social Science 232	2 (0)	6 (25)	9 (13)	17 (38)
Social Science 233	3 (0)	8 (4)	5 (6)	16 (10)
Humanities 241	16 (17)	3 (6)	0 (3)	19 (26)
Humanities 242	6 (7)	8 (8)	1 (1)	15 (16)
Humanities 243	6 (4)	2 (3)	0 (0)	8 (7)
A course in my major	41 (28)	18 (37)	7 (9)	66 (75)
Any other course	6 (6)	24 (28)	9 (7)	39 (41)
A Social Science Instructor	13 (6)	16 (12)	5 (5)	34 (23)
A Humanities Instructor	16 (21)	11 (1)	0 (4)	27 (26)
A Natural Science Instructor	3 (9)	18 (26)	4 (4)	25 (39)
A Communication Skills Instructor	17 (16)	27 (16)	6 (9)	50 (41)
An instructor in my major	29 (22)	19 (18)	5 (7)	53 (47)
Any other instructor	12 (14)	21 (24)	5 (9)	38 (47)
Social Events	8 (8)	3 (8)	23 (19)	34 (35)
Athletic Events	3 (1)	1 (0)	19 (14)	23 (15)
Lecture-Concert Series	13 (15)	1 (0)	9 (8)	23 (23)

TABLE 60 (cont'd)

Type of Experience	Number Responding*			
	Positive	Negative	Neutral	Total
Extra-Curricular Clubs	14 (17)	2 (4)	9 (8)	25 (27)
Athletic participation	16 (1)	1 (0)	6 (2)	23 (3)
Fraternity or Sorority	36 (44)	17 (8)	16 (10)	69 (62)
Close friend(s)	52 (91)	3 (7)	4 (4)	59 (102)
Roommate	11 (28)	10 (17)	13 (11)	34 (56)
Discussions or "bull sessions"	30 (30)	10 (8)	14 (5)	54 (43)
Counseling Center	5 (7)	5 (9)	31 (22)	41 (38)
Library	5 (2)	4 (3)	19 (37)	28 (42)
Mental Hygiene Clinic	1 (1)	2 (5)	3 (4)	6 (10)
Improvement Services	3 (0)	4 (5)	7 (15)	14 (20)
Living quarters	7 (3)	19 (20)	15 (25)	41 (48)
Church	22 (39)	5 (2)	11 (11)	38 (52)
Housemother	1 (2)	0 (19)	4 (36)	5 (57)
R.A. or Head R.A.	8 (3)	9 (4)	22 (21)	39 (28)
Employment	15 (11)	1 (6)	3 (8)	19 (25)
Person dated	34 (60)	15 (23)	11 (7)	60 (90)
Family	35 (41)	7 (6)	2 (6)	44 (53)
Conduct patterns of faculty	1 (4)	12 (11)	11 (20)	24 (35)
Conduct patterns of students	7 (2)	27 (54)	8 (16)	42 (72)
Academic Adviser	5 (5)	5 (3)	23 (34)	33 (42)
Campus Regulations	0 (1)	58 (56)	28 (28)	86 (85)
Being Away from home	32 (46)	3 (10)	32 (32)	67 (88)
ROTC	8 (0)	49 (0)	36 (0)	93 (0)

TABLE 60 (cont'd)

Type of Experience	Number Responding*			
	Positive	Negative	Neutral	Total
Physical Education	4 (6)	7 (12)	26 (21)	37 (39)
Honors College Membership	5 (2)	1 (1)	3 (4)	9 (7)
Conforming to campus mores	4 (0)	10 (25)	20 (41)	34 (66)
Honorary Societies	5 (6)	1 (2)	5 (2)	11 (10)

* The first figures are for males; those in ( ) are for females.

which are common to all individuals whether or not they attend college. Although some might argue that the general education courses at Michigan State and the instructors were also common to all these students, this was not necessarily the case. All of these students had been exposed to Communication Skills and Natural Science but considering variations in instructors and instructional methods, they need not have been exposed to a common set of experiences. Because of this lack of commonality among sections of a commonly-taken course, and because courses and instructors as an aggregate may have an impact even though students are not usually able to isolate the effect of a single course or instructor from the aggregate, we must avoid concluding that the formal, academic experiences have no impact at all.

The five experiences that male sophomores said had the most positive effect were (ranked in order of importance): friends (26.4 per cent), a course in my major (20.8 per cent), fraternity (18.3 per cent), family (17.8 per cent), and a person dated (17.3 per cent).

The five experiences male sophomores said had the most negative effect upon them were: campus regulations (29.4 per cent), ROTC (24.9 per cent),

conduct pattern of students (13.7 per cent), a Communication Skills instructor (13.7 per cent), and an instructor other than in the four general education courses or their major (12.1 per cent).

It is indeed difficult to understand why campus regulations and ROTC should have had a negative effect upon anyone so that they should become disillusioned or have their confidence shaken. It is conceivable that these males interpreted a negative impact to mean dissatisfaction and resentment and hence these two factors were most prominent. On the other hand, it is possible that certain experiences encountered might have had some impact upon these students.

It is interesting to note that the results of this analysis support previous findings that although students become more liberal and tolerant of unconventional dress, behavior, and manners, they do not necessarily accept this unconventionality.

The five experiences that female sophomores said had the most positive effect upon them (increased their confidence, raised their sights, made them a better person, etc.) were: close friend/s (42.7 per cent), person dated (28.2 per cent), being away from home (21.6 per cent), sorority (20.7 per cent), and family (19.2 per cent).

The five experiences which sophomore females said had the most negative disillusioning effect upon them were: campus regulations (26.3 per cent), conduct pattern of students (25.4 per cent), a course in their major (17.4 per cent), Natural Science 183 (16.9 per cent), and a course other than one in the general education sequence or their major (13.1 per cent).

Inasmuch as change in one direction may be deemed as desirable for some people as change in a completely opposite direction for others, or as no change for some, those factors or experiences which had a negative effect

might be held to have been as desirable as those which had a positive effect. This is especially so when one considers that we were attempting to isolate those experiences that produced change in these college sophomores. Hence, if students stated that Natural Science 183 had a negative effect because it disillusioned them or made them question some of their prevailing attitudes and values, we should not construe this as a detriment or lack of impact. For this reason, we have combined the positive and negative responses in Table 60 to present the 10 experiences that sophomores said had some effect or impact upon them. These are listed below in Table 61.

TABLE 61

Ten Experience Perceived by College Sophomores as Having An Impact on their Attitudes and Values

Nature of Experience	Rank-Order Males	Rank-Order Females
Course in my major	1	3
Communication Skills Instructor	8	
Instructor in my major	6	
Fraternity or Sorority	4	7
Close friend	3	1
Roommate		9
Discussions or "bull-sessions"	10	
Church		10
Person dated	5	2
Family	9	8
Conduct pattern of students		5.5
Campus Regulations	2	4
ROTC	7	
Being away from home		5.5

These data yield some very interesting, if not perplexing problems.

1. Why should the males have been affected by their Communication Skills instructor but not the females? Is it conceivable that this might be related to the differential reading ability level between the sexes? Is it possible that the nature of the course material might have had more impact upon the males who were initially more stereotypic and dogmatic than females?

2. Why should males be more likely to be influenced by an instructor in their major than are females? Is it because males are more likely to change their initial major in proportionately larger numbers than are females with the result that they become happier in their major? Is it because a vocation or profession is more meaningful and important to a male than to a female? Is it because males are more inclined to be vocationally-oriented to begin with and therefore derive their greatest satisfaction from courses in their major?

3. Why are females more likely to be influenced by their roommate than are males? Is it because the peer group structure of the females is more potent than that of the males? Is it because males have a greater tendency to move from one living unit to another than do females? Is it because females are more receptive to new ideas to begin with, are more flexible and adaptive than males, and are hence more susceptible to change?

4. Why should males not be influenced by the conduct of their peers while females are influenced? Although females are more liberal in their outlook to begin with on a variety of issues could it be that in matters relating to sex and sexual behavior that they are more conservative than males? Could it be because the females are the passive participants in dating, sex, and so forth?

Summary of Sophomore and Junior Year Interviews

At the end of the junior year, the students who were still enrolled at Michigan State University felt that a college education is a good thing; that it is necessary for their success in future life; and that without a college education a person cannot expect to progress to any great level of success. The students were asked what college should do for or to a person, and what they thought that two and one-half years at the University had done to or for them. There was almost complete agreement that the University should "teach them to get along better with all kinds of people, should prepare them for a profession, should give them some idea of the world and its activities, and in general should give them all the basic facts that would make for a happy and successful life for them." A college education seems to be the formula for complete success and happiness in the eyes of the majority of the students. Some of them were planning graduate studies immediately upon graduation from college, but most of them were looking forward to marriage, a job, establishing a home, and perhaps sometime in the future returning for graduate work. Thus graduate education was not an immediate goal with the majority of the students. It was equally as difficult for the students at the end of the junior year, as it had been at the end of the sophomore year, to identify precisely the changes which had taken place and the factors related to these changes since they had come to college. They said that they had become more mature, had learned to make their own decisions, had become independent of their families, and in general that they had grown up and had learned to take care of themselves. Some of them mentioned that they had become better critical thinkers, that they were able to think through problems more fully and more analytically, and that they realized the necessity for an education and how slight their chances of success were in the world today without an

education. The fundamental change which they visualized in themselves revolves around their development from immature to mature persons who had become better able to make their decisions and solve their problems, or who, if not able to solve their problems, had at least found the channels through which they could receive help. Particular people seem to have had little influence in motivating the students to choose a particular major area of study. Occasionally, a high school teacher, a relative, a professor, or a friend did have some influence upon the direction of choice or change on the part of the student. Many students entered the University unaware of the fact that they could enter as a non-preference student. Therefore, they chose a major at random, often in an area in which they were not particularly interested, but simply on the premise that they had to choose some major field at the beginning of their college work. If a student were unfortunate enough to be assigned to an academic adviser who was not particularly interested in him and who would not direct him to the Counseling Center for assistance in choosing a major area on the basis of his interests and abilities, the student was apt to go from bad to worse. In some instance a student said that he had changed his major five times and had done this so rapidly that he was not able to remember the sequence of the choices. Even at the end of the junior year, a few students said that they were not absolutely sure that their current choice of a major was what they would be most happy in pursuing the rest of their lives. At least 30 per cent of the students, which was approximately 30 of the 89 which were interviewed, changed their major at least once, and many of them had changed two or three times since the beginning of their freshman year. It seemed to be most prevalent that those who had entered in one of the specialized, technical areas such as engineering, nursing, or veterinary medicine, had changed to areas totally unrelated. For the most part, these students

had gone into teaching either in elementary or secondary education. This seemed to be almost an admission of the fact that they did not really know what they wanted to do, but that if they enrolled as an education major, they felt that they would eventually find something which would interest them. It was refreshing to see and talk with students who were enrolled in a major area in which they were finding enjoyment and to hear their expectations of professional pursuits. These students were few and far between and they were a minority within the number which were interviewed.

As was the case with experiences or situations which had been most significant to the students, they also found it difficult to name any one person whom they felt had had a marked impact upon them. In a previous section the impact which students felt faculty members had upon them has been discussed and in general this impact was not high in terms of being a significant experience for the students. There were instances in which the interviewee could name a friend, a roommate, or a person whom they had dated who had probably at one time or another caused them to change their actions in some way. However, with the exception of students who were married or who were either pinned or engaged, students really did not have strong feelings concerning another person who had caused them to change or who had any particular impact upon them in college. The married students cited either husband or wife who had been instrumental in encouraging them to continue in college and who had helped financially or in other ways to make this possible for them. The men, especially, who were engaged seemed to feel that the person to whom they were engaged had had a stabilizing effect upon them. Engagement made success in their professional courses seem more necessary than it had been before they were faced with the problem of becoming a breadwinner soon after graduation from college, if not before. Few girls

who were engaged to boys who were also students mentioned that the boys had influenced them to get better grades, to become more serious about their college life, or to regulate their dating according to the time needed for studying. These girls felt that their grades had improved since they had become engaged, and as in the case of the boys they felt that the security of their engagement had really been a motivating factor bringing an increase in time spent studying and an improvement in their grades.

Analysis of Junior-Year Experience Inventory

In the spring of 1961, an experience inventory containing the same 50 types of experiences or contacts that were used in the sophomore year was administered to a random sample of 241 males and 189 females of the original population still enrolled at Michigan State University. The only difference between the two inventories was in the manner in which responses were to be made. In the sophomore year, the subjects were asked to indicate those experiences that had a positive impact and those experiences that had a negative impact. In the junior year, the subjects were asked to indicate those experiences that reinforced their attitudes and values and those that modified or altered their views. In addition, these juniors were also asked to choose from the 50 experiences the three that had the most reinforcing effect and the three that had the most modifying effect on their behavior.

Reference to Table 61a indicates that, for the first time, the formal, academic-type experiences such as courses and instructors, began to play a significant role in the lives of college students. Previous to this, only a single course or instructor was mentioned. Now, however, the general education, non-major, and major courses and instructors are visualized by these students as having had a marked impact on their attitudes, values, beliefs, and interests. Furthermore, it is of interest to note that the general

TABLE 61a

Self-Perceived Impact of Various Experiences and Contacts on Attitudes and Values of Male (N=241) and Female (N=189) College Juniors

Type of Experience	Number Indicating Experience			
	Reinforcing	Very Reinforcing	Modifying	Very Modifying
Communication Skills 111	30(26)	4(1)	28(10)	2(0)
Communication Skills 112	34(27)	2(1)	32(13)	2(1)
Communication Skills 113	35(30)	3(0)	29(15)	1(1)
Natural Science 181	49(35)	6(3)	32(20)	8(5)
Natural Science 182	48(23)	2(1)	36(22)	9(6)
Natural Science 183	38(25)	1(0)	28(16)	4(3)
Social Science 231	48(39)	10(8)	50(28)	9(3)
Social Science 232	52(27)	0(2)	39(21)	4(2)
Social Science 233	51(26)	4(3)	37(24)	6(3)
Humanities 241	73(58)	6(7)	49(33)	17(3)
Humanities 242	71(53)	6(7)	48(35)	14(7)
Humanities 243	63(51)	7(4)	43(36)	15(5)
A course in my major	60(43)	46(35)	29(24)	23(34)
Any other course	45(29)	8(14)	27(29)	17(13)
A Social Science Instructor	32(17)	6(5)	21(22)	13(9)
A Natural Science Instructor	37(23)	5(5)	23(20)	3(1)
A Communication Skills Instructor	27(22)	4(7)	19(19)	14(8)
An instructor in your major	47(32)	48(41)	25(21)	20(22)
Any other instructor	45(23)	12(20)	21(29)	14(15)
Social events	50(46)	12(5)	25(32)	12(15)
Athletic events	62(29)	5(1)	9(12)	3(0)
A Humanities Instructor	32(35)	19(11)	32(16)	18(8)

TABLE 61a (cont'd)

Type of Experience	Number Indicating Experience			
	Reinforcing	Very Reinforcing	Modifying	Very Modifying
Lecture-Concert Series	43(46)	11(22)	28(22)	11(6)
Extra-curricular clubs	47(32)	10(15)	19(25)	9(5)
Participation in athletics	40(20)	16(2)	11(4)	19(0)
Fraternity or sorority	16(5)	31(31)	28(24)	27(21)
Close friend(s)	57(42)	43(32)	41(37)	34(49)
Roommate	46(40)	16(23)	42(32)	17(27)
Discussions or "bull-sessions"	50(32)	25(19)	55(44)	34(45)
Counseling Center	23(16)	3(5)	25(12)	4(6)
Library	39(31)	6(2)	17(9)	4(1)
Mental Hygiene Clinic	11(9)	0(1)	9(4)	2(1)
Improvement Services	18(12)	0(0)	8(3)	1(0)
Living quarters	31(21)	9(5)	44(44)	26(12)
Church	41(35)	30(26)	14(10)	9(8)
Housemother	24(25)	2(4)	13(9)	1(6)
R.A. or Head R.A.	22(18)	5(1)	15(4)	8(1)
Employment	45(34)	17(7)	31(17)	20(10)
A person I dated	34(25)	37(25)	22(29)	31(55)
Family	44(45)	43(35)	17(16)	11(4)
Conduct pattern of faculty	29(10)	3(2)	30(29)	6(6)
Conduct pattern of students	30(19)	6(5)	45(55)	25(16)
Academic adviser	29(27)	5(3)	19(9)	10(6)
Campus regulations	16(22)	2(2)	47(34)	25(14)
Being away from home	39(41)	22(20)	35(35)	23(40)

TABLE 61a (cont'd)

Type of Experience	Number Indicating Experience			
	Reinforcing	Very Reinforcing	Modifying	Very Modifying
ROTC	30(0)	10(0)	34(0)	32(0)
Physical Education	37(20)	2(3)	14(7)	2(1)
Honors College Membership	15(14)	3(1)	6(4)	1(2)
Conforming to campus mores	19(26)	5(2)	35(32)	22(14)
Honorary Societies	22(22)	3(3)	7(10)	3(2)

First set of figures for males; those in ( ) for females.

education courses and instructors, as well as those in the students' major not only reinforced but modified student behavior. Granted, both courses and instructors in the students' major, were more frequently mentioned by these college juniors (both males and females) as having had a Very Reinforcing or a Very Modifying effect than were courses and instructors in the general education area, but this might be expected.

The five experiences male juniors said had a very reinforcing effect were (ranked in order of frequency): an instructor in my major 19.9 per cent), a course in my major (19.0 per cent), close friend(s) (17.8 per cent), family (17.8 per cent), and fraternity (12.8 per cent).

The five experiences male juniors said had a very modifying effect were (ranked in order of frequency): close friend(s) (14.1 per cent), discussions or "bull-sessions" (14.1 per cent), ROTC (12.9 per cent), person I dated (12.9 per cent), and campus regulations (10.3 per cent).

The analysis of this data, especially that relating to the modifying effect of certain experiences might provide us with some insight into the conclusions reached by Jacob (1957). If one were to look at these data, it is readily evident, that insofar as these male juniors are concerned, neither courses nor instructors had any marked impact upon their attitudes and values. However, this is only true if we define impact as change or modification. If we were to consider reinforcement of existing attitudes and values as synonymous with change, it is readily evident that some courses and instructors had more impact than many facets of the peer sub-culture.

It is also interesting to see that some experiences listed as reinforcing elements also acted as modifying agents (friends, for example). Hence, this supports our previous contention that it is indeed difficult to separate from an aggregate of experiences those which reinforce from those which alter or modify existing behavior traits.

The five experiences female juniors said had a very reinforcing effect were (ranked in order of frequency): an instructor in my major (21.7 per cent), a course in my major (18.5 per cent), family (18.5 per cent), close friend(s) (16.9 per cent), and sorority (16.4 per cent).

The five experiences female juniors said had a very modifying effect were (ranked in order of frequency): a person I dated (29.1 per cent), close friend(s) (25.9 per cent), discussions and "bull-sessions" (23.8 per cent), being away from home (21.1 per cent), and a course in my major (18.0 per cent).

It is readily evident that insofar as those experiences which were felt to have had a reinforcing effect were concerned, there was a great deal of similarity between the male and female juniors. The only marked differences were that a proportionately larger percentage of females than males felt that an instructor in their major and "Greek" affiliation had a reinforcing effect on their attitudes and values.

Although there was more similarity than differences between male and female juniors insofar as the modifying impact of certain non-academic experiences were concerned, it is readily evident that females were much more susceptible to the influence of the peer group than were their male counterparts. For example, both males and females stated that close friends had a modifying effect on their behavior. However, whereas 25.9 per cent of the females felt this way, only 14.1 per cent of the males felt this way. Similar trends were evident for the impact of a person dated and discussions.

Once again, many more questions are raised than answers provided. Why should a proportionately larger number of females than males have been influenced by their peers? Are females more susceptible to change than males? Do females form closer associations and have more intimate relationships with their peers than do males? Why were females influenced by being away from home while males were not affected by this? Is it conceivable that males made a cleaner break with their home than did the females? If this is the case, why?

In summary, it might be concluded that there is more agreement than disagreement between male and female college juniors insofar as their perception of the impact of various experiences on their behavior is concerned. The analysis of the junior-year experience inventory, reinforces, in part, the conclusions drawn from previous analyses in that the student sub-culture and peer group play an important role in the lives of college students. At the same time, however, it is evident that by the junior year, the formal, academic-type experiences begin to assume increased importance. Granted, when looking at the responses of the extremes (Very Reinforcing or Very Modifying), it would appear that the informal non-academic experiences played a more significant role in the lives of these students than did courses and

instructors. This is not necessarily the case when one considers the totality of responses. In addition, it was readily evident that courses and instructors, both in the general education sequence and in the students' major were more likely to have had a reinforcing than a modifying effect.

Analysis of Senior-Year Experience Inventory

In the spring, 1962 retesting session, the Senior-Year Experience Inventory was administered to 1,051 college seniors (590 males and 461 females) who were members of the original population still enrolled at Michigan State University. In a previous section of this report, some of the findings pertaining to seniors' perception of college, courses, grades, and instructors have been discussed. This section will consist of an analysis of those experiences college seniors felt had some impact upon their attitudes, values, beliefs, and interests.

As in the junior-year experience inventory, the student was presented with a list of 50 types of experiences or contacts. From this list, he was asked to check those which he felt had a reinforcing effect and those which he felt had a modifying effect upon his behavior. In addition, he was asked to select the three experiences he felt had the most reinforcing effect and the three that had the most modifying effect on his attitudes and values.

Reference to Table 61b indicates, that for both males and females, courses and instructors in the general education area as well as in the major and non-major area had a marked impact on their personality development. Although the informal, non-academic experiences still played an important role, they now began to assume a subordinate role to courses and instructors. This trend was also evident in the analysis of the junior-year experience inventory.

Once again, it is evident that courses and instructors in the general-education area although not as potent as those in the students' major area,

TABLE 61b

Self-Perceived Impact of Various Experiences on Attitudes and Values of Male (N=590) and Female (N=461) College Seniors

Type of Experience	Number Indicating Experience			
	Reinforcing	Very Reinforcing	Modifying	Very Modifying
Communication Skills 111	136(76)*	6(0)	57(28)	7(1)
Communication Skills 112	142(67)	7(1)	59(33)	6(1)
Communication Skills 113	137(74)	8(2)	63(31)	4(2)
Natural Science 181	167(86)	13(8)	90(52)	13(10)
Natural Science 182	159(78)	13(9)	86(49)	10(7)
Natural Science 183	150(56)	8(5)	62(46)	3(4)
Social Science 231	140(84)	15(6)	124(61)	32(12)
Social Science 232	144(66)	5(3)	107(52)	8(10)
Social Science 233	150(71)	6(1)	110(58)	7(8)
Humanities 241	221(142)	27(17)	125(70)	26(8)
Humanities 242	214(140)	23(15)	133(73)	28(8)
Humanities 243	220(139)	21(13)	126(74)	21(10)
A course in my major	186(106)	128(96)	69(56)	61(38)
Any other course	146(68)	40(22)	78(66)	28(47)
A Social Science Instructor	82(59)	15(3)	89(39)	22(18)
A Humanities Instructor	125(80)	47(18)	81(36)	41(18)
A Natural Science Instructor	94(63)	20(14)	62(30)	13(9)
A Communication Skills Instructor	93(56)	27(6)	54(32)	23(13)
An instructor in your major	143(85)	134(102)	66(53)	80(51)
Any other instructor	131(81)	45(28)	65(48)	51(33)
Social Events	150(96)	43(17)	71(63)	18(27)

*First set of figures for males; those in ( ) for females

TABLE 61b (cont'd)

Type of Experience	Number Indicating Experience			
	Reinforcing	Very Reinforcing	Modifying	Very Modifying
Athletic Events	172(83)	20(2)	34(15)	6(2)
Lecture-Concert Series	140(135)	35(45)	73(49)	13(12)
Extra-curricular clubs	123(87)	29(24)	45(32)	15(11)
Participation in athletics	130(33)	24(5)	30(11)	3(2)
Fraternity or sorority	54(37)	70(55)	52(29)	59(22)
Close friend(s)	170(107)	97(94)	77(63)	76(64)
Roommate	142(109)	32(48)	91(61)	39(39)
Discussions or "bull-sessions"	162(85)	58(41)	118(83)	59(65)
Counseling Center	80(42)	18(9)	35(18)	12(15)
Library	134(77)	15(4)	58(34)	14(5)
Mental Hygiene Clinic	45(19)	0(0)	22(8)	2(3)
Improvement Services	44(23)	1(0)	20(11)	3(2)
Living quarters	109(59)	21(15)	89(66)	39(41)
Church	113(87)	54(49)	27(17)	22(14)
Housemother	66(61)	9(11)	25(24)	3(3)
R.A. or Head R.A.	78(43)	11(2)	38(16)	11(4)
Employment	114(65)	50(16)	71(30)	61(21)
A person I dated	108(75)	65(64)	65(54)	73(93)
Family	154(103)	60(68)	38(19)	16(11)
Conduct pattern of faculty	91(35)	11(7)	65(56)	20(6)
Conduct pattern of students	105(54)	23(15)	97(84)	48(31)
Academic adviser	108(65)	20(13)	46(24)	21(11)
Campus regulations	70(38)	8(8)	92(49)	31(21)

TABLE 61b (cont'd)

Type of Experience	Number Indicating Experience			
	Reinforcing	Very Reinforcing	Modifying	Very Modifying
Being away from home	113(78)	43(41)	96(65)	74(89)
ROTC	77(0)	35(0)	75(0)	45(0)
Physical Education	110(48)	6(11)	35(14)	2(1)
Honors College Membership	28(27)	9(5)	23(15)	4(2)
Conforming to campus mores	76(40)	8(6)	81(54)	29(16)
Honorary Societies	54(49)	8(7)	27(18)	2(3)

First set of figures for males; those in ( ) for females.

(insofar as having either a Very Reinforcing or Very Modifying effect) nevertheless, had a great deal of impact on the personality development of these college students.

The five experiences male seniors said had a very reinforcing effect were (ranked in order of frequency): an instructor in your major (22.7 per cent), a course in your major (21.7 per cent), close friend(s) (16.4 per cent), fraternity (11.9 per cent), and a person I dated (11.0 per cent).

Of interest here is the fact that although instructors and courses in the general education area were near the bottom (in terms of frequency of choice) of those experiences having a Very Reinforcing effect on student attitudes and values, they nevertheless ranked very high in terms of their general reinforcing effect. In fact, for those experiences said to have a reinforcing effect, the three humanities courses ranked 1, 2, and 3 for the

50 experiences. This same trend was evident for the junior-year experience inventory. In addition the other three general education courses and instructors were chosen, in nearly all instances, with greater frequency as having a reinforcing effect than were the other non-academic experiences.

The five experiences male seniors said had a very modifying effect were (ranked in order of frequency): an instructor in your major (13.6 per cent), close friend(s) (12.9 per cent), being away from home (12.5 per cent), a person I dated (12.4 per cent), employment (10.3 per cent), and a course in your major (10.3 per cent).

Once again, many questions are raised. Why should the general education courses and instructors rank high in their reinforcing or modifying effect but rank low when the degree of impact is introduced? What is their about humanities (both courses and instructors) that makes it stand out so much above the other general education courses?

The five experiences senior females said had a very reinforcing effect were (ranked in order of frequency): an instructor in your major (22.2 per cent), a course in your major (20.9 per cent), close friend(s) (20.4 per cent), family (14.8 per cent), and a person I dated (13.9 per cent).

Although there was very little difference between senior males and females in the proportion who said that either a course or an instructor in their major had a very reinforcing effect, it would appear that the females were more susceptible than males to the influence of close friends and a person dated.

Whereas senior males said that their fraternity had a reinforcing effect upon their attitudes and values, this was not so for the females insofar as their sorority was concerned.

The five experiences senior females said had a very modifying effect upon their personality development were (ranked in order of frequency): a person I dated (20.2 per cent), being away from home (19.3 per cent), discussions or "bull-sessions" (14.1 per cent), close friend(s) (13.9 per cent), and an instructor in your major (11.1 per cent).

Once again, it is readily evident that there is a great deal of similarity between senior males and females with respect to their perception of those experiences that had a very reinforcing or very modifying effect upon their attitudes, values, ideals, and beliefs. At the same time, however, there are some marked sex differences. For example, why should females be influenced by discussions but not males? Why should a "person I dated" have a greater modifying effect for females than for males? Why should being away from home affect females more than males? Why should a course in one's major have a very modifying effect for males but not for females? These and other questions deserve further study.

In summary, it would appear that the findings of the senior-year experience inventory support those gathered from the analysis of the junior-year experience inventory. Once again, courses and instructors, especially those in the students' major begin to have a marked impact upon their personality development. In fact, it would appear that the formal academic experiences are more potent than the informal, non-academic experiences. Friends, discussions, "bull-sessions", and persons dated are the most frequently mentioned non-academic experiences. This, however, is to be expected.

CHAPTER VI

THE RELATIONSHIP BETWEEN CRITICAL THINKING ABILITY, ATTITUDES, VALUES AND SCHOLASTIC PERFORMANCE

At Michigan State University, all students are required to take a three-term sequence in each of the following courses: Natural Science, Communication Skills,[20] Social Science, and Humanities in order to satisfy the 45 quarter-hour general education requirement for graduation. Normally, the first two general education sequences are completed during the freshman year, Social Science is taken in the sophomore year, and Humanities is generally taken in the students' junior year. There are exceptions to this, but the preceding plan is followed by the majority of students.

It has already been demonstrated that what one learns is affected by his prejudices, beliefs, attitudes, and interests. It has also been shown that certain personality-types do not do as well in subjects within the humanities and social sciences as they do in the strictly objective or factual courses. We were interested in looking at the relationship between certain affective measures and scholastic performance in each of the 12 terms of the general-education courses in order to learn whether any pattern was evident.

<u>Hypotheses Tested</u>

1. There is a significant relationship between performance in Natural Science, Communication Skills, Social Science, and Humanities courses and critical thinking ability, attitudes, and values.[21]

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[20] This course has now been replaced by American Thought and Language.

[21] The data for Natural Science and Communication Skills are reported on pp. 40-44.

2. Affective and/or cognitive measures are better predictors of final examination grades than of instructor grades.

3. The prediction of performance in any one of the 12 courses can be increased by the use of a battery of affective measures.

Procedure

To study the relationship between the thirty-six measures of scholastic performance in the four general education courses (viz. instructor, common final objective examination, and total grade,[22] for each of three terms in Natural Science, Communication Skills, Social Science, and Humanities) and (a) critical thinking ability, (b) attitudes of stereotypy and dogmatism, and (c) traditional values, Pearson-product-moment correlations which were significant at the .05 level of confidence were further analysed by partial correlation--that is, influence of general academic aptitude (CQT total score) was "partialled out."

To study the contribution of the affective variables to the prediction of scholastic performance in each of the twelve terms of general-education, multiple R's were computed.

Inasmuch as there are significant sex differences in the affective and cognitive measures used, the data for the males and females were treated separately.

DESCRIPTION OF THE COURSES

Natural Science

Throughout the three terms, the substantive findings of science are subordinate as material to be learned to the methods of scientific inquiry--

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22 In each of the general education courses, the student receives a grade from his instructor (IG) based upon class performance, tests, etc. as well as a grade on a common final objective examination (EG). Each of these contributes 50 per cent to the total or course grade (FG).

the collection of data by observation and experimentation, the expression of data in symbolic language, and the drawing of conclusions and generalizations predicated on the data collected.

Natural Science 181 is the first course and stresses empiricism, law, and theory. After analysing some of the factors involved in the process of observation, the student begins to study the cell and reproduction to illustrate the methods of science. The last part of the term is spent on heredity in order to demonstrate the role of imagination and theory in scientific inquiry.

Natural Science 182 stresses the application of theories of evolution to the study of changes in the earth's crust and to the study of living things. Geology, in its broadest sense, that is, classification of minerals and rocks is employed to demonstrate the nature and function of classification in scientific inquiry. The concept of evolution is examined by studies of serology, skeletal homology, and comparative anatomy in order to demonstrate how broad generalizations in science serve to explain large independent classes of facts. Throughout the first two terms of the course, evidence is gathered to show that ordinary, human, intellectual activity deviates little if any, from scientific activity.

Natural Science 183 has as its major theme the problem of the nature and behavior of matter. The atomic-molecular theory provides the focus of course content. By means of observation and experimentation facts are gathered to support or refute an hypothesis. In addition, emphasis is placed on making the scientific process meaningful so that the student can relate discoveries in one area to explanations in a somewhat unrelated area. For example, Newton's laws of motion form a foundation for the kinetic theory of gases.

Communication Skills

This course has as its major objective the improvement of the students' ability to communicate clearly in speech and writing and also to comprehend and evaluate critically spoken and written discourse. It differs from the traditional grammar course in that it stresses reading, writing, speaking, and listening.

Once again, content or subject matter is subordinate to the development of skills. In other words, the student is encouraged to develop these skills of reading, writing, listening, and speaking, using the topic or theme with which he feels most at ease.

Communication Skills 111 is the first term in the sequence. In this term, approximately equal time is devoted to five major units--Orientation, Observation and Preparation in the communication process; Development of a mastery in a few things rather than disorganized knowledge in many areas; Definition of words and how they might connote different meanings to different people; Presentation and Demonstration which shows the student how ideas can be conveyed by the use of visual aids; and Revision which attempts to develop a self-criticism on the part of each and every student so that he can critically evaluate his own work as well as that of others.

Communication Skills 112 has as its major emphasis the investigation of the nature, the creation, and the evaluation of reports. Each student gives a minimum of four speeches and writes four expository papers; one of these papers is an investigative paper of 1500-2000 words on a subject within his field of interest. In this term students are introduced to the library and told about footnotes, bibliographic references, preparation of bibliography cards, and so forth.

One of the four speeches is a long oral report of about eight minutes and is based upon the subject of the investigative paper.

The last unit of this second term's work is based upon the study of mass media of communication, using newspapers and magazines as sources. All students are required to buy the same issue of Harper's and critically analyse the material contained in this one issue. In addition, they study the format, illustrations, editorials, etc. in this single issue so as to develop an appreciation for some of the mass media of communication.

Communication Skills 113 has its major emphasis on problem solving and persuasion. By preparing persuasive speeches and papers, students gain some understanding of logical and ethical emotional appeals. Students are taught how to analyse reading and auditory materials so as to pick out methods of appeal. They are also given opportunity to see how different media (radio, newspapers, magazines) and different people incorporate these methods into their writings or commercials.

Humanities

The purpose of this course is to enlarge and enrich the student's understanding of his cultural heritage, to deepen his intellectual maturity, to enhance his sensitivity to humane values in all fields of man's thought and endeavor, to elevate his ethical outlook, and to make him intelligently aware of his own worth and dignity, his obligations, and his responsibilities as an individual human being.

Since humanities is the study of man as a unique, creative being, the sources for this study of man are drawn primarily from the fields of history, philosophy, religion, literature, and the arts.

Some basic assumptions upon which the course was formulated were: (1) it is more effective to deal thoroughly with a few areas rather than superficially

with many, (2) the student should be introduced to primary sources of material, (3) only the most significant achievements of a particular age will be included in the study of that era, and (4) the interrelationship between various factors must be studied in order to make the material meaningful.

Humanities 241 spans the period from 500 B.C. to about 500 A.D. and focuses upon the study of Greece, Rome, and Christianity. In the time spent on Christianity, reference is made to the Judaic background, life, and teaching of Jesus. Three days during the term are devoted to showing carefully selected slides which illustrate classical sculpture and architecture.

Humanities 242 considers the "Medieval Unity" (1100-1400) and the "Emergence of Modern Man" (1450-1700). In the former, such topics as the medieval literature, the medieval church, scholasticism, and Romanesque and Gothic sculpture are considered. In the latter, attention is paid to the three large movements marking the transition from the medieval to the modern cosmology: Humanism, Protestantism, and Rationalism.

Humanities 243 has for its central theme the rise and decline of modern liberalism. It starts with the enlightenment of the 18th century and concludes with the effect of the two World Wars on the modifications in the Western cosmology, the rise of collectivism, and the growth of anti-intellectualism. The final three weeks of the course are spent considering the present struggle between the West and the Soviet Union.

Social Science[23]

The development of an integrated social science course at Michigan State University recognized certain limitations. There is no attempt to survey the

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[23] The Social Science course have been revised to give added attention to the international dimension and to focus more directly on a series of social problems or issues.

whole social science area, and the disciplines of sociology, economics, political science, etc. are not treated individually. The problems faced daily by individuals and by groups of many kinds, and the responsibility of society itself in relation to problems present a guide for the course content.

Social Science 231 is the first term in the sequence and is predominantly oriented toward sociology and social psychology. The major question considered is "How are new members of the group oriented to the prevailing patterns of behavior?" Attention is given to the broad foundational factors through and upon which human behavior develops--the biological organism, the physical environment, and the socio-cultural environment. An attempt is made in this term's work to define what the foundations of human behavior are and what processes are involved through which the individual learns to behave in human ways. Hence, some emphasis is placed on concepts of needs, drives, wants, or motivation.

Social Science 232 is oriented toward economics. The focus here is on those aspects of society which are primarily concerned with the satisfaction of needs or wants through economic means. Because every society develops its own way of satisfying its basic needs, comparisons are made between the U.S. and U.S.S.R.

Social Science 233 deals primarily with the concept of social control and may be said to be oriented toward political science. It is recognized that each member of society from the beginning of life has forces, including government, which operate upon him to shape him into a degree of conformity and uniformity that makes him an acceptable member of society. Once again, comparisons between the United States and other countries are made.

Results and Discussion

Tables 62-69 contain the correlation matrices, partial correlations, and multiple R's for the cognitive and affective variables for the three terms each in the social science and the humanities general education courses. Although different populations were employed at various stages of the investigation, the same trend appeared to be present for the relationship between affective measures and scholastic performance. Hence, we will consider the data collectively rather than separately, pointing out differences whenever they occur.

From the zero-order correlation matrices, it is readily evident that the correlations between grades and the cognitive measures were of a higher magnitude than were the correlations between grades and the affective measures used in this investigation. This was true for both males and females in each of the four general education courses. Although there were differences in the magnitudes of the correlations among the four general education courses, these differences did not appear to be great enough to cause any great concern. Regardless of the subject-matter area investigated, the cognitive measures only account for about 30 per cent of the total variation in grades. It would appear, then, that factors other than academic aptitude play an important role in determining scholastic performance. This appears to be more true for those courses of a humanistic or social-science nature than it does for the strictly factual, objective, or scientific subject-matter courses.

TABLE 62

Intercorrelations of Variables*

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. 231-IG		51	88	45	46	51	45	47	52	17	23	04	-14	40	34
2. 231-EG	51		87	45	52	54	43	52	54	17	29	06	-09	46	40
3. 231-FG	87	87		52	56	61	51	57	61	20	30	05	-13	49	42
4. 232-IG	48	47	54		58	89	48	54	58	12	22	02	-07	33	36
5. 232-EG	50	61	64	51		89	51	69	69	17	35	04	-10	47	48
6. 232-FG	57	62	68	87	87		56	69	71	16	32	03	-10	45	47
7. 233-IG	50	45	55	50	51	58		54	87	17	20	04	-08	37	34
8. 233-EG	52	57	63	53	63	67	67		88	20	38	-01	-11	51	49
9. 233-FG	57	57	65	57	63	69	90	90		21	33	01	-10	50	48
10. IB	20	26	26	10	24	20	08	24	18		25	-01	-63	26	21
11. CT	32	37	39	25	38	36	25	42	37	18		-02	-25	56	54
12. DVI	10	07	10	06	06	07	08	05	07	00	02		12	05	02
13. D-1	-10	-17	-16	-10	-19	-17	-05	-18	-13	-66	-16	04		-18	-13
14. Rdg.	44	50	54	34	44	45	38	55	51	26	55	04	-21		65
15. CQT-T	42	46	51	31	42	43	38	52	50	23	54	09	-14	67	

*Note: Males above diagonal, females below diagonal
Decimals omitted.
.088 significant at .05 level.
.115 significant at .01 level.
IG = Instructor Grade.
EG = Common Final Examination Grade.
FG = Final Grade (EG + IG).

TABLE 63

Correlations of Six Predictor Tests with Social Science Instructor, Examination, and Total Grades

Variable	231			232			233		
	I	E	Total	I	E	Total	I	E	Total
Inventory of Beliefs									
Males	.17	.17	.20	.12	.17	.16	.17	.20	.21
Females	.20	.26	.26	.10	.24	.20	.07	.24	.18
Critical Thinking									
Males	.23	.29	.30	.22	.35	.32	.20	.38	.33
Females	.32	.37	.39	.25	.38	.36	.25	.42	.37
Differential Values Inventory									
Males	.04	.06	.05	.02	.04	.03	.04	-.01	.01
Females	.10	.07	.10	.06	.06	.07	.07	.05	.07
Dogmatism Scale									
Males	-.14	-.09	-.13	-.07	-.10	-.10	-.08	-.11	-.10
Females	-.10	-.17	-.16	-.10	-.19	-.17	-.05	-.18	-.13
MSU Reading									
Males	.40	.46	.49	.33	.47	.45	.37	.51	.50
Females	.44	.50	.54	.34	.44	.45	.38	.55	.51
CQT-Total									
Males	.34	.40	.42	.36	.48	.47	.34	.49	.48
Females	.43	.46	.51	.31	.42	.43	.38	.52	.50

TABLE 64

Partial Correlations for Significant Zero-Order Correlations for Males (N=582) and Females (N=613)

Social Science Grade	Zero-Order Correlations			Partial Correlations		
	IB	DVI	D-1	IB	DVI	D-1
231 IG						
Males	.17		-.14	.11*		-.10*
Females	.20	.10	-.10	.12*	.07	-.05
231 EG						
Males	.17		-.09	.09*		-.04
Females	.26		-.17	.18*		-.12*
231 FG						
Males	.20		-.13	.13*		-.08*
Females	.26	.10	-.16	.17*	.06	-.10*
232 IG						
Males	.12			.05		
Females	.10		-.10	.03		-.06
232 EG						
Males	.17		-.10	.08*		-.04
Females	.24		-.19	.16*		-.15*
232 FG						
Males	.16		-.10	.07		-.04
Females	.20		-.17	.12*		-.12*
233 IG						
Males	.17			.11*		
Females						
233 EG						
Males	.20		-.11	.11*		-.05
Females	.24		-.18	.14*		-.13*
233 FG						
Males	.21		-.10	.12*		-.04
Females	.18		-.13	.08*		-.07

* For 579 df, an "r" of .08 is significant at .05 level for males.

* For 610 df, an "r" of .08 is significant at .05 level for females.

TABLE 65

Coefficient of Multiple Correlation Between Final Grades in Three Social Science Courses and a Battery of Predictor Variables for Males and Females

Battery*	SS 231	SS 232	SS 233
A	.43 (.53)	.48 (.46)	.48 (.51)
B	.51 (.58)	.51 (.48)	.53 (.55)
C	.51 (.58)	.51 (.51)	.54 (.56)
D	.51 (.62)	.52 (.51)	.55 (.56)

Note: Figures in parentheses ( ) are for females.

*Battery A: CQT Total Score + NEU Reading Test
Battery B: CQT Total Score + Test of Critical Thinking
Battery C: CQT Score + NEU Reading Test + Test of Critical Thinking
Battery D: CQT Total Score + NEU Reading Test + Test of Critical Thinking + Differential Values Inventory + Dogmatism Scale

TABLE 66

Correlation Matrix of Humanities Grades and Selected Cognitive and Affective Measures*

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. 241 IG		64	90	57	58	62	57	58	64	19	21	08	-07	34	32
2. 241 EG	70		91	60	65	69	55	66	67	25	26	11	-12	43	38
3. 241 FG	92	93		64	67	73	62	68	72	24	26	11	-11	42	39
4. 242 IG	66	65	71		63	89	57	57	63	14	19	08	-06	32	31
5. 242 EG	61	68	70	70		92	52	65	65	21	29	09	-11	42	42
6. 242 FG	69	73	77	91	93		60	68	71	19	27	10	-10	41	41
7. 243 IG	58	60	64	67	60	69		64	90	19	19	03	-10	33	30
8. 243 EG	64	69	72	64	67	71	70		91	26	30	08	-11	45	43
9. 243 FG	66	71	74	71	69	76	91	93		25	27	06	-12	43	40
10. IB	15	20	19	14	17	17	15	22	20		28	01	-63	31	29
11. CT	29	31	33	26	31	31	18	29	26	19		03	-23	59	57
12. DVI	08	09	09	05	04	05	04	05	05	-01	01		10	06	03
13. D-I	-07	-11	-10	-05	-11	-09	-09	-12	-12	-64	-13	06		-20	-16
14. MEU Mag.	44	50	51	39	44	45	35	52	48	29	53	03	-17		66
15. OGT-V	46	49	52	44	45	48	37	48	46	24	58	06	-10	66	

*Decimal points omitted
Males (N=892) above diagonal; females (N=783) below diagonal.

TABLE 67

Correlations Between Six Predictor Tests and Humanities Instructor, Examination, and Total Grades

Predictor Variable	Humanities 241			Humanities 242			Humanities 243		
	I	E	Total	I	E	Total	I	E	Total
Inventory of Beliefs									
Males	.19	.25	.24	.14	.21	.19	.19	.26	.25
Females	.15	.20	.19	.14	.17	.17	.15	.22	.20
Critical Thinking									
Males	.21	.26	.26	.19	.29	.27	.19	.30	.27
Females	.29	.31	.33	.26	.31	.31	.18	.29	.26
Differential Values Inventory									
Males	.08	.11	.11	.08	.09	.10	.03	.08	.06
Females	.08	.09	.09	.05	.04	.05	.04	.05	.05
Dogmatism									
Males	-.07	-.12	-.11	-.06	-.11	-.10	-.10	-.11	-.12
Females	-.07	-.11	-.10	-.05	-.11	-.09	-.09	-.12	-.12
MEU Reading									
Males	.34	.43	.42	.32	.42	.41	.33	.45	.43
Females	.44	.50	.51	.39	.44	.45	.35	.52	.48
OQT-Total									
Males	.32	.38	.39	.31	.42	.41	.30	.43	.40
Females	.46	.49	.52	.44	.45	.48	.37	.46	.24

Note:

I = Instructor Guide
E = Common final examination grade
N (males) = 892
N (females) = 703

TABLE 68

Partial Correlations for Significant Zero-Order Correlations
For Males (N=892) and Females (N=783)

Humanities Grade	Zero-Order Correlations			Partial Correlations		
	IB	DVI	D-1	IB	DVI	D-1
1. 241 IG						
Males	.19	.08	-.07	.11*	.07*	-.02
Females	.15	.08		.05	.06	
2. 241 EG						
Males	.25	.11	-.12	.16*	.09*	-.06
Females	.20	.09	-.11	.10*	.07*	-.07*
3. 241 FG						
Males	.24	.11	-.11	.14*	.11*	-.05
Females	.19	.09	-.10	.08*	.07*	-.06
4. 242 IG						
Males	.14	.08		.05	.07*	-.05
Females	.14			.04		
5. 242 EG						
Males	.21	.09	-.11	.10*	.08*	-.04
Females	.17		-.11	.07*		-.06
6. 242 FG						
Males	.19	.10	-.10	.08*	.10*	-.06
Females	.17		-.09	.06		-.06
7. 243 IG						
Males	.19		-.10	.11*		
Females	.15		-.09	.07*		-.06
8. 243 EG						
Males	.26	.08	-.11	.16*	.07*	-.05
Females	.22		-.12	.12*		-.08*
9. 243 FG						
Males	.25		-.12	.15*		-.06
Females	.20		-.12	.10*		-.08*

* For 892 df, an "r" of .065 is significant at the .05 level for males.

* For 783 df, an "r" of .070 is significant at the .05 level for females.

TABLE 69

Coefficient of Multiple Correlation Between Final Grades in Three Humanities Courses and a Battery of Predictor Variables for Males and Females

Battery*	Hum. 241	Hum. 242	Hum. 243
A	.446 (.565)	.450 (.512)	.457 (.516)
B	.393 (.525)	.412 (.485)	.403 (.461)
C	.455 (.566)	.453 (.513)	.459 (.521)
D	.465 (.567)	.456 (.515)	.460 (.522)

Note: Figures in parentheses ( ) are for females.

* A = CQT + MSU Reading B = CQT + Critical Thinking
C = CQT + Reading + Critical Thinking D = CQT + Reading + IB + DVI

From the data presented in Tables 62-69 the following conclusions appear warranted:

1. For both the males and females, there was a higher correlation between stereotypic beliefs and examination grade than between stereotypic beliefs and instructor grade. In other words, the Inventory of Beliefs was a better predictor of examination grades than of instructor grades. This was true in all three Social Science terms and in the three terms of Humanities. This would suggest that the flexible, adaptive, non-authoritarian student was more likely to receive a higher grade on the common final examination than from his instructor. A variety of explanations might be offered for this: (a) the final examination is more reliable than the instructor grade, (b) the non-stereotypic student is not as conforming and rigid as his stereotypic counterpart, and does not do everything the instructor says, and hence receives a lower grade from his instructor, (c) the non-stereotypic student does better on an objective common final because he has a higher CQT score to begin with, or (d) paper-and-pencil tests predict paper-and-pencil tests.

2. With the exception of Social Science 231 for males, the Dogmatism Scale was a better predictor of examination grades than of instructor grades. The data would suggest that the student who is more rigid, compulsive, authoritarian, and unreceptive to new ideas would be apt to receive a higher grade from his instructor than on the common final examination. Why this is so, is not too clear at this time, although the explanations offered above are also appropriate here.

3. For the most part, for both males and females, there was no significant relationship between the traditional-values score of the DVI and either the (a) instructor, (b) examination, or (c) total grade in each of the three Social Science terms. The only exceptions to this were the instructor and total grades in Social Science 231 for females. Even so, the correlations, although statistically significant, were of little practical consequence. Although one might have expected to find a somewhat substantial relationship between value orientation and performance in social science courses, particularly Social Science 231, this was not the case.

Insofar as the relationship between traditional-values and performance in the Humanities was concerned, there was very little relationship for the females but, oddly enough, the converse was true with respect to the males. In other words, performance in the Humanities was associated with values for males, but to a much lesser extent for the females. Why this should be so for one sex but not for the other is unclear at this time. Even after differences in CQT scores were partialled out, this trend was still evident.

4. For both the males and females, the Test of Critical Thinking was a better predictor of performance in Social Science and Humanities courses than were any of the attitude or value measures studied. At the same time, the MSU Reading Test was the best predictor of academic success in Social Science for males and females combined. While the CQT was the best predictor for the females, the MSU Reading Test was the best predictor for the males. This is no doubt due to the fact that such courses have a high verbal factor loading.

5. For the three affective measures considered in this study--stereotypic beliefs, traditional values, and dogmatism--the highest correlations were obtained between performance in Social Science and the Inventory of Beliefs. Even though the Inventory of Beliefs and Dogmatism Scale measure essentially the same characteristics (r=.63) it would appear that in nearly every instance, better predictions were obtained with the IB than with either the D-1 or the DVI. No doubt the fact that there is a higher correlation between the IB and CQT than between the D-1 and CQT (and we already know that the CQT is related to grades) explains in part why this is so. Also, it is conceivable that the IB is a scale which is more directly related to general education courses than is the D-1; hence the higher correlations between grades in Social Science and the IB. However,

when CQT was "partialled" out, it is seen that the IB was still a better predictor of grades in Social Science and Humanities courses than was the D-1. This fact would tend to support the latter of the two reasons noted above for the IB being a better predictor of social science and humanities grades than is the D-1.

Inasmuch as there is a positive correlation between the attitude (and value) measures and general academic aptitude (CQT total score), it would be conceivable that performance in Social Science is more a reflection of academic aptitude than of attitudes and/or values. When partial correlation was used to control for CQT, many of the originally significant r's were no longer statistically significant. From Table 64 it is seen that for Social Science, of the 16 r's significant for the males, only 9 remain significant after CQT was "partialled out"; for the 18 r's significant for the females, only 12 are still significant after CQT was "partialled out." These data would suggest that attitudes were related to performance in Social Science, even though the relationships were somewhat low. From Table 58 it is seen that for the Humanities terms, of the 24 significant correlations for males, 15 are still significant after CQT was "partialled out"; for the females, 11 of the partial correlations are significant whereas 19 of the zero-order correlations were significant. It is interesting to note that whereas dogmatism was significantly related to performance in Social Science, it is minimally operative in Humanities. Why this is so, when stereotypy is more related to performance in Humanities than in Social Science (even though the IB and D-Scale are in themselves related), is difficult to explain. It is conceivable of course that stereotypic beliefs and a closed-system of beliefs although both "tapping" the authoritarian syndrome, do so in markedly different ways.

For both males and females in regard to the Social Science and Humanities examination grades (and also instructor grades), the relationship between grades or performance and value orientation was both small and scattered. Although

one might not necessarily expect to find a relationship between the DVI and grades in all social science and humanities courses, one would have reasonably expected to find a significant relationship between values and Social Science 231 because of the nature of the course material. In any event, there were more significant partial r's between scholastic pefformance and stereotypic beliefs than between scholastic performance and either traditional values or dogmatism.

Correlation coefficients only reflect the relationship between two variables, the predictor and criterion. In this case the affective measures were the predictor variables and performances in the Social Science terms were the criterion variables. Table 65 presents multiple r's using two, three and six-variable predictors. From the data presented in Table 65 it would appear that:

1. For both males and females, the inclusion of a battery of affective measures did little, if anything, towards the prediction of scholastic performance in Social Science. The only exception to this was for the females in Social Science 231 where the inclusion of such a battery increased the accountable variance in grades by 4 per cent. This, however, is of too little practical significance to warrant the time required to complete the battery.

2. For both males and females (with the exception of Social Science 232 grades for males), the MSU Reading Test was the best predictor of final grades in Social Science. Although the inclusion of the Test of Critical Thinking increased the multiple R in every instance, once again, the gain in precision would not warrant such a procedure.

3. The <u>best</u>, <u>single</u> predictor of academic success is previous academic success. In every instance, for both males and females, previous performance in a Social Science term was the best predictor of grades in another term.

Table 69 contains the multiple correlations for various batteries of affective and/or cognitive variables as predictor variables for scholastic performance in Humanities. Once again, as was evident above, the inclusion

of a battery of affective variables contributes little, if anything, to the prediction of final course grades in the Humanities terms. Although the multiple R's are increased slightly by increasing the number of cognitive predictors from one to two to three, the increase in precision is too minute to justify their inclusion. With the exception of the grades for males in Humanities 241, the inclusion of affective variables in the multiple R actually decreases the multiple R. In some instances, the CQT yielded the highest predictions, while in other cases, the MSU Reading Test was the best single predictor.

It is readily evident from both correlational analyses that affective variables are operative to only a limited extent in determining course grades. This is true not only for social science courses, but for other general education courses (Neel, 1959). Nevertheless, cognitive variables account for less than 50 per cent of the total variation in grades. Therefore, we should not exclude the influence of affective variables and their effect upon predictions of scholastic performance.

Summary and Conclusions

To study the relationship between the scholastic performance in the three terms of the Social Science course and critical thinking, attitudes, and values, the data for 1,195 students (582 males and 613 females) were used. To study the same relationship for performance in the three terms of Humanities, the data for 1,685 students (895 males and 782 females) were used.

Although the zero-order correlations between any one of the affective measures and academic success (as measured by instructor, common final examination, or total grade) were of a low order and statistically significant, it was seen that their inclusion with a battery of cognitive variables did little to increase the prediction of grades in the Social Science, Natural

Science, Communication Skills, or Humanities courses. Without exception, the multiple R's for the Natural Science course were increased to a greater degree than were the multiple R's for the other courses which might be considered as humanities-oriented.

Of the three affective measures studied, the best predictor was the Inventory of Beliefs; the poorest was the traditional value score of the Differential Values Inventory.

After controlling for general academic aptitude, it is seen that there was still a significant relationship between attitudes of stereotypy (and dogmatism) and performance in the Social Science and Humanities courses. Oddly enough, values did not appear to have any relationship to grades in either of these areas.

The following conclusions seem pertinent:

1. There was a significant relationship between critical thinking ability, attitudes of stereotypy and dogmatism, and performance in the Social Science and Humanities courses.

2. Cognitive and affective measures were better predictors of examination grades than of instructor grades.

3. Certain affective measures were fair predictors of grades in Social Science; the least effective was the Differential Values Inventory.

4. Cognitive variables were better predictors of grades in Social Science than affective measures; the best single predictor was the MSU Reading Test.

5. Students who were highly stereotypic and dogmatic tended to receive lower examination grades, but higher instructor grades, in each of the three Social Science and Humanities terms than did those who were flexible, adaptive, and receptive to new ideas.

6. The findings of this study did not warrant the inclusion of a battery of affective measures in attempting to predict grades in Social Science and Humanities.

CHAPTER VII

CRITICAL THINKING ABILITY, ATTITUDES, AND VALUES AMONG STUDENTS ATTENDING TWO LIBERAL-ARTS COLLEGES AND A LARGE STATE UNIVERSITY

If one were to hypothesize that students select a particular college in order to satisfy certain basic needs, one might expect to find differences in the personality characteristics between students at liberal arts colleges and complex universities and between students at private and public institutions. In addition, if the liberal arts colleges were church-related, one might expect to find major differences between their students and students attending colleges not church-related. Furthermore, marked differences should appear in attitudes and values of students attending Roman Catholic, Protestant, and Jewish institutions as well as between students of the various Protestant denominations.

A variety of factors enter into a student's selection of one college or university over another. For example, a student with high religious and aesthetic values might choose to attend a particular church-supported college because he felt that the atmoshphere or "press" of that institution would support or reinforce his existing attitudes, values, beliefs, and interests. Or he might choose it because of parental influence, proximity, financial considerations, curriculum, and so forth. It is conceivable, however, that a student might ignore many of these factors if his personality were such that he felt he would be happier in College A than in College B.

We would expect to find more homogeneity of personality characteristics of student within a particular college than among colleges. Although there is not necessarily a relationship between the "needs" of an individual and the "press" of the college environment he chooses, student bodies tend to

resemble the press of their own institution slightly more than those of other institutions (Stern, 1960). Inasmuch as we would expect and know that there are differences in the "press" among different institutions, we should expect to find differences in the critical thinking ability, attitudes, and values among students attending different institutions.

Hypotheses Tested

1. There is no significant difference among either males or females at three midwestern colleges in their (a) critical thinking ability, (b) stereotypic beliefs, (c) dogmatism, and (d) traditional-value orientation.

2. There is no significant difference among either males or females at three midwestern colleges in their perception of selected religious concepts.

Procedure

In the course of the larger study on critical thinking ability, attitudes, and values of college students, a battery of cognitive and affective measures was administered to the total entering freshman class at a Congregational, liberal arts college (hereafter referred to as Institution C), and a Presbyterian, liberal arts college (hereafter referred to as Institution P) during the first two weeks of classes in the fall of 1960. In addition, this same battery of tests was administered to a random sample of freshmen attending a large state university during their fall, 1960, Orientation Week. Excluding students who were either foreign-born or who transferred from one college to another, complete, usable test data were available for 918 students. For computational ease, a random sample of 50 males and 50 females was drawn from each institution, making the study sample 300.

To study differences in critical thinking ability among the students in the three schools, analysis of variance was used. To study differences in stereotypic beliefs, dogmatism, and traditional values among the students in

the three schools, analysis of variance and covariance was used with the effects of critical thinking ability being controlled. To study differences in students' religious beliefs, chi-square was used.

TABLE 70

Means and Standard Deviations for Males at Three Midwestern Colleges on Selected Cognitive-Affective Variables

Variable	Institution					
	P (N=50)		C (N=50)		S (N=50)	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Inventory of Beliefs	66.98	12.75	58.72	16.16	61.44	13.89
Critical Thinking	29.70	6.92	25.84	6.22	31.04	7.02
DVI-Traditional Score	36.04	6.11	35.58	6.04	36.08	6.05
Dogmatism Scale	171.54	23.55	177.38	27.00	166.82	27.49

TABLE 71

Means and Standard Deviations for Females at Three Midwestern Colleges on Selected Cognitive-Affective Variables

Variable	Institutions					
	P (N=50)		C (N=50)		S (N=50)	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Inventory of Beliefs	71.84	11.90	65.38	16.72	67.34	12.61
Critical Thinking	30.46	7.10	27.58	6.23	31.76	6.13
DVI-Traditional Score	35.46	6.23	35.28	6.19	33.84	7.15
Dogmatism Scale	169.72	20.37	173.14	26.00	165.60	34.99

Results and Discussion

Since there were significant sex differences in the measures used, the data were analyzed separately for males and females.

Tables 70 and 71 present the means and standard deviations for the four cognitive and affective tests for males and females respectively. From these tables, it is readily evident that there are significant differences in critical thinking ability, stereotypic beliefs, dogmatism, and traditional values among the students at Institutions C, P, and S. Both males and females at Institution P were least stereotypic in their beliefs; that is; they were more flexible and adaptive, while both males and females at Institution S were better critical thinkers. Both males and females at Institution C were most stereotypic and scored the lowest on critical thinking among students at the three colleges.

At all these colleges, the females are less stereotypic in their beliefs, are better critical thinkers, are more emergent-value oriented, and are less dogmatic than their male counterparts.

Tables 72 and 73 contain the results of the analyses of variance for the critical thinking ability scores. Tables 74 and 75 contain the adjusted mean scores when the critical thinking score was used as a covariate. It is readily evident that whereas, initially, there were significant differences in attitudes and values among students attending the three different institutions, there were also marked differences among these students in their critical thinking ability. When critical thinking ability was controlled, the only difference which was statistically significant was that for males on the Inventory of Beliefs. In other words even after adjusting for initial differences in critical thinking ability among male students at three different institutions, there still was a significant difference among male students in their stereotypic beliefs. However, after making adjustments for differences in critical thinking ability, no evidence was found that students attending the three different types of colleges differed significantly in their attitudes and values, with the exception of stereotypic beliefs for males.

TABLE 72

Analysis of Variance of Critical Thinking Scores for Males
at Three Midwestern Colleges

Sources of Variation	df	Sum of Squares	Mean Square	F
Total	149	7,518.06		
Between groups	2	728.92	364.46	
Within groups	147	6,789.14	46.18	7.89*

TABLE 73

Analysis of Variance of Critical Thinking Scores for Females
at Three Midwestern Colleges

Sources of Variation	df	Sum of Squares	Mean Square	F
Total	149	6,797.34		
Between groups	2	457.62	228.81	
Within groups	147	6,339.72	43.13	5.31*

*Pr $|F \geq 3.13| = .05$

Pr $|F \geq 5.06| = .01$

TABLE 74

Means and Adjusted Means for Males at Three Midwestern Colleges on Affective Variables Studied

Variable	Institution						F
	1		2		3		
	Mean	Adjusted Mean	Mean	Adjusted Mean	Mean	Adjusted Mean	
Inventory of Beliefs	66.98	66.43	58.72	60.71	62.44	60.00	3.241*
Traditional Values	36.04	35.94	35.58	35.95	36.08	35.81	1.02
Dogmatism	171.54	172.40	177.38	174.30	166.82	168.60	0.67

*Pr $\left|F > 3.08\right| = .05$

TABLE 75

Means and Adjusted Means for Females at Three Midwestern Colleges on Affective Variables Studied

Variable	Institution						F
	1		2		3		
	Mean	Adjusted Mean	Mean	Adjusted Mean	Mean	Adjusted Mean	
Inventory of Beliefs	71.84	71.64	65.38	66.30	67.34	66.62	2.16
Traditional Values	35.46	35.40	35.28	35.56	33.84	33.62	1.28
Dogmatism	169.72	170.05	173.74	172.27	165.50	166.73	0.79

The findings of this study are in the expected direction with the exception of the traditional-value score. One would have hypothesized that there would have been significant differences in attitudes, values, and critical thinking ability among students attending a Presbyterian liberal arts college, a Congregational liberal arts college, and a large state university. However, this was not so if one considers that initial differences in attitudes and values were the result of differences in the "academic aptitude" among these students.

The most unexpected findings were those relating to the traditional-value scores among the three groups of males and females. One would expect that students attending a church-supported college would have a markedly different value orientation from students attending a large state university. One might even go so far as to say that while the values in large state universities are implicit, the values in the church-supported, liberal arts colleges are explicit. Even so, there did not appear to be a marked difference in the attitudes and values of students who elected to attend one college over another, although there was a marked difference in the critical thinking ability among these students.

An examination of the standard deviations in Tables 70 and 71 (with a resulting F-test) does not permit one to conclude that the students attending one institution were more homogeneous in their attitudes and values than students in another college. This was true for both the males and females in the three midwestern colleges studied.

The findings of this study relating to the attitudes and values of students at colleges with different value-orientations would seem to suggest that these colleges were not catering to a unique or atypical student personality. In other words, the differences that were found in the degree and direction of stereotypic beliefs, unreceptivity to new ideas, rigidity, authoritarianism and traditional-value orientation were, for the most part, nothing more than a function of the difference present in the general academic aptitude existing among students attending a Presbyterian liberal arts college, a Congregational liberal arts college, and a large state university. When the students attending these different colleges were equated for their critical thinking ability, nearly all initial differences ceased to exist. This would suggest, then, that for the students attending the three colleges in this

study, the student who chose to attend a state university had a higher critical thinking score.

The students at the two church-related colleges did not appear to be guided in their choice by the "press" of the institution they attended. Why the better critical-thinking student chose to attend a large state university is not too clear at this time. One might hypothesize that at the larger institution there is a wider curricular offering in terms of major areas of study. Hence, the better critical-thinking student, even though he may wish to enroll in a church-related college, does not do so because he is unable to major in such fields as engineering, veterinary medicine, or medical technology. Since it is well known that students in engineering, the physical sciences, and the medical sciences are better critical thinkers than students in education and business, this factor of curricular offering might explain, in part at least, why, as a group, the better critical thinkers are enrolled at a state university.

Inasmuch as improvement in critical thinking ability appears to be accompanied by a modification of stereotypic beliefs, dogmatism, and traditional-value orientation, the tasks of liberal arts colleges become doubly important as they lead students to examine their values and to analyze critically the issues inherent in the liberal disciplines.

Tables 76 and 77 present the data for the chi-square analyses that are significant. The hypothesis tested here was that there is no difference in perception of selected religious concepts among either males or females attending three midwestern colleges. It was found that this was true for the males on each of the six religious concepts surveyed: (a) The Bible, (b) Man, (c) Eternity, (d) Sin, (e) Prayer, and (f) God. For the females, however, there were significant differences at the three colleges insofar as their perceptions of God and the Bible were concerned.

TABLE 76

Concept of the Bible Among Females at
Three Midwestern Colleges

Institution	Response 3	4	5	6	7	X^2
F	12	6	4	21	7	
S	20	6	4	13	7	
C	22	2	5	6	14	17.505*

*For 8 df, X^2 = 15.507 significant at .05 level.

From the seven statements within each major definition, the subject is asked to select the one that most nearly agrees with his attitude concerning that concept. No one selected either the first or second definition.

The Bible

1. The Bible is inconsistent, contradictory and exaggerated in value.
2. The Bible is a collection of myths.
3. The Bible is a great literary work expressing religious philosophy.
4. The Bible is valuable because of its inspirational effect.
5. The Bible is an account of man's experiences with God.
6. The Bible is God's revelation written by inspired men.
7. The Bible was dictated by God through the hand of man and is infallible.

TABLE 77

Concept of God Among Females at Three Midwestern Colleges

Institution	Response 1	2	3	4	χ^2
F	37	9	1	3	
B	21	9	10	10	
C	26	8	7	9	12.599*

*For 6 df, χ^2 = 12.592 significant at .05 level

No one selected either the fifth, sixth, or seventh definition.

God

1. God is our creator and judge who observes everything we do.
2. God exists as a divine human being.
3. God exists as a supernatural power beyond man's comprehension.
4. God probably exists but no one knows what he is like.
5. The concept of God is a means of explaining the unknown.
6. God is a projection of man's unconscious mind.
7. There is no supernatural being.

These findings were not in the expected direction since one would had expected to have found marked differences among students at these three colleges. Although the differences between the two church-related colleges might have been small, one would have expected to find large differences between students at a large state university and students at a church-related college. A point of interest, however, was the unanimity of choice among students in each of the religious concepts. In other words, there was more similarity than difference in religious concepts among the students at the three colleges surveyed in this study.

Summary and Conclusions

To study differences in critical thinking ability, traditional values, and attitudes of stereotypy and dogmatism among students attending a Presbyterian liberal arts college, a Congregational liberal arts college, and a large state university, a battery of tests was administered to 918 students in the fall term, 1960. Using a random sample of 50 males and 50 females from each of the three institutions, analysis of covariance was used to study differences in means on each of the four variables among students at the three institutions. The following conclusions seem justified:

1. There was a statistically significant difference in critical thinking ability among the students (both males and females) at the three midwestern colleges.

2. There was a statistically significant difference in stereotypic beliefs among males at the three colleges even after controlling for critical thinking ability.

3. There was a statistically significant difference in perception of God and the Bible among females at the three colleges.

4. There was no signficant difference in either dogmatism or in traditional values among the females or among the males at the three colleges after controlling for critical thinking ability.

5. There was no significant difference in stereotypic beliefs among the females at the three colleges after controlling for critical thinking ability.

6. There was no significant difference in the homogeneity among the students at the three colleges on the four affective and cognitive variables.

7. There was no significant difference in perception of selected religious concepts among males at the three colleges.

CHAPTER VIII

THE RELATIONSHIP BETWEEN CERTAIN SELECTED COGNITIVE AND AFFECTIVE MEASURES AND CHANGE OF MAJOR*

There is no denying the fact that many students graduate in a major other than that which they entered as freshmen. At Michigan State University only about 50 per cent of an entering freshman class graduates in their original major. A variety of factors can enter into a student's decision to change a major. The academic demands of a curriculum may be too severe, and this leads a student to change to an easier major. There may be a dissonance in the values of the student with his peers in a particular curriculum, and he changes to a major where his behavior is reinforced. Or the nature of the original major field might be such that it is antagonistic to the student's attitudes and values. In the few studied conducted on why students change major, it was demonstrated that the changes centered around interest changes, curricular preferences and dissatisfaction, and generally low grades (Brass, 1956; Pierson, 1962).

In this portion of the overall study, we were interested in learning whether there are cognitive and/or affective differences between students who do not change their major and students who do change their major while at Michigan State University.

Method

All students who had been subjects of this study and who were still enrolled at Michigan State in the fall of 1961 (this would be the beginning of their senior year) constituted the study population. Usable test data

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* The writer is indebted to Dr. Wilma Bradley who provided the basic data for this chapter.

were available for 1,353 students (561 females and 792 males). Of these, 690 had remained in their original choice of major and 663 had changed their major area sometime between the beginning of their freshman year and the end of their junior year. The breakdown of the population according to type, sex, and G.P.A. at time of change are presented in Table 78.

TABLE 78

Classification of Population by Status, Sex, and GPA

Group	Status	GPA	Sex	Number
I	Non-changer		female	288
II	Non-changer		male	402
III	Changer	below 2.0	female	40
IV	Changer	below 2.0	male	106
V	Changer	above 2.0	female	233
VI	Changer	above 2.0	male	284

Analysis of variance was used to study differences in critical thinking ability between changers and non-changers. Analysis of covariance (controlling for differences in critical thinking ability and CQT) was used to study differences in attitudes and values between changers and non-changers. The data were treated separately for males and females inasmuch as there were initial significant differences in the attitudes and values of men and women.

Findings

Table 79 presents the results of the analysis of variance for the College Qualification Test and Test of Critical Thinking for males and females. As would be expected, there was very little difference between those students who did not change major and those with a 2.0 GPA who did change major.

However, there was a significant difference between either of these groups and the group of changers with a GPA below 2.0.

Findings

The means, standard deviations, adjusted means, and F-ratios for males and females are presented in Tables 79 and 80 respectively. As would be expected, there was very little difference between those students who did not change major and those with a 2.00+GPA who did change major. However, there was a significant difference between either of these groups and the group of changers with a GPA below 2.00.

1. There was no significant difference among the three female groups in their degree of stereotypy or unreceptivity to new ideas.

2. There was a significant difference among the three female groups in their traditional value orientation. This was so even after adjustments were made among the three groups for critical thinking ability. Oddly enough, those students who changed major but had less than a 2.0 GPA were significantly more traditionally-value oriented than their counterparts who either did not change major, or who had a GPA of 2.0+ when they changed major. It is evident that the differences in value orientation among the three groups must be explained in terms other than differences in critical thinking ability and/or general academic aptitude.

3. Although there was a difference among the female groups in their value orientation there was no significant difference in either stereotypic beliefs or dogmatism.

4. For the males, there was a significant difference among the three groups in their traditional value orientation, their stereotypic beliefs, and their receptivity to new ideas. Once again, those students with a GPA of less than 2.0 were most stereotypic and dogmatic. In other words, these students were more rigid, authoritarian, and unreceptive to new ideas than were students in the other two groups. However, in terms of value orientation, the non-changers had the highest mean traditional value score, the changers with a GPA of 2.0+ had the lowest, while the changers with a GPA of less than 2.0 were in between. These differences were present even after adjustments were made for the three groups in terms of their critical thinking and CQT scores.

TABLE 79

Means, Standard Deviations, Adjusted Means, and F-Ratios for Males Who Changed Major and Those Who Did Not Change Major

Instrument	N	Status	Mean	S.D.	Adjusted Mean	F[2]
Test of Critical Thinking	402	Non-changers	33.16	7.11		
	106	Changers, below 2.0 G.P.A.	29.64	5.92		
	284	Changers, 2.0 + G.P.A.	32.88	6.43		21.863*
College Qualification Tests	402	Non-changers	133.68	26.71		
	106	Changers, below 2.0 G.P.A.	118.09	21.12		
	284	Changers, 2.0+ G.P.A.	134.10	22.72		3.129*
Inventory of Beliefs	402	Non-changers	64.60	13.55	64.16	
	106	Changers, below 2.0 G.P.A.	59.37	14.89	61.99	
	284	Changers, 2.0 + G.P.A.	64.48	13.98	64.10	6.377*
Differential Values Inventory	402	Non-changers	35.89	6.95	35.86	
	106	Changers, below 2.0 G.P.A.	33.95	7.30	34.12	
	284	Changers, 2.0 + G.P.A.	33.72	6.72	33.69	8.460*
Rokeach's Dogmatism Scale	402	Non-changers	166.79	25.17	166.23	
	106	Changers, below 2.0 G.P.A.	173.30	23.58	176.04	
	284	Changers, 2.0 + G.P.A.	164.76	25.85	164.45	12.581*

* Significant at or beyond .05 level of confidence

[1] A = 4, B = 3, C = 2, D =1

[2] Analysis of variance was used for the test of Critical Thinking and the CQT. Analysis of covariance was used for the Inventory of Beliefs, the Differential Values Inventory and the Dogmatism Scale.

TABLE 80

Means, Standard Deviations, Adjusted Means, and F-Ratios for Females Who Changed Major and Those Who Did Not Change Major

Instrument	K	Status	Mean	S.D.	Adjusted Mean	F[1]
Test of Critical Thinking	288	Non-changers	32.33	6.81		
	40	Changers, below 2.0 G.P.A.	27.05	6.88		
	233	Changers, 2.0 + G.P.A.	33.97	6.48		18.814*
College Qualifications Test	288	Non-changers	123.33	23.63		
	40	Changers, below 2.0 G.P.A.	109.72	21.33		
	233	Changers, 2.0 + G.P.A.	125.32	23.68		7.378*
Inventory of Beliefs	288	Non-changers	65.78	12.71		
	40	Changers, below 2.0 G.P.A.	64.15	11.92		
	233	Changers, 2.0 + G.P.A.	66.19	12.61		0.387
Differential Values Inventory	288	Non-changers	34.55	7.07	34.55	
	40	Changers, below 2.0 G.P.A.	39.95	6.41	40.23	
	233	Changers, 2.0 + G.P.A.	33.95	6.64	33.71	10.202*
Rokeach's Dogmatism Scale	288	Non-changers	164.01	24.15		
	40	Changers, below 2.0 G.P.A.	165.15	25.69		
	233	Changers, 2.0 + G.P.A.	163.98	24.14		0.245

* Significant at or beyond .05 level of confidence

[1] A = 4, B = 3, C = 2, D = 1

[2] Analysis of variance was used for the Test of Critical Thinking and the CQT. Analysis of covariance was used for the Inventory of Beliefs, the Differential Values Inventory and the Dogmatism Scale.

On the one hand, the findings of this study tend to support the thesis of Marshall and Simpson (1943) in that students who were not definite in their vocational choice were lower in academic performance than students with definite vocational aims. On the other hand, there also appears to be some contradiction inasmuch as there was a sizeable number of students who changed major but had a GPA of 2.0+. The findings of this study are also in agreement with those of Brass (1956) in that poor grades were one factor which tended to be associated with change of major. It appears evident, from the results of this study, that change or changes in the major area of study, especially for those students with poor grades, may be associated with certain cognitive and/or affective variables.

CHAPTER IX

SUMMARY AND CONCLUSIONS

Statement of the Problem

The purpose of this study was to investigate the initial status of the 1958 entering freshman class at Michigan State University with respect to their critical thinking ability, their attitudes of stereotypy and dogmatism, and their value orientation. In addition, we were interested in studying the similarities and/or differences in these measures among students from different socio-cultural-educational homes; the similarities and/or differences among students in the various curricula; the interrelationship among the various attitude and value measures used; the relationship between scholastic performance and selected personality characteristics; and the factors associated with attitude and value changes.

Insofar as changes in critical thinking, attitudes, and values were concerned, we were more interested in studying the changes that occurred from one year to the next than from the beginning of the freshman year to the end of the senior year.

Design of the Study

During the Fall, 1958 Orientation Week, a battery of cognitive and affective tests[23] was administered to 2,973 students entering Michigan State University. The only restrictions placed upon the population to be considered eligible were that they were native-born Americans and were attending college

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[23] The major test battery consisted of the following: A.C.E. Inventory of Beliefs, Form I; A.C.E. Test of Critical Thinking, Form G; Rokeach's Dogmatism Scale; Prince's Differential Values Inventory; the College Qualification Test; the MSU Reading and English tests; and a Biographical Questionnaire especially constructed for the study.

for the first time. Complete, usable test data were obtained for 2,746 students (1436 males and 1310 females). These 2,746 subjects comprised the population used to study initial status and socio-cultural-educational-curricular differences in the cognitive and affective measures used. Analysis of variance and covariance was the statistical test employed.

To study the relationship between scholastic performance in Communication Skills and/or Natural Science and selected cognitive and affective measures, a random sample of this population was used. Pearson-product-moment correlations and multiple R's were computed.

To study changes in critical thinking ability, attitudes, and values at different stages of college, either the total remaining population or random samples were employed. The former was used for retesting at the end of the freshman and senior years, the latter for retesting at the end of the sophomore and junior years[24]. Tests of significance of the differences for correlated means were used to test the hypotheses related to changes in critical thinking, attitudes, and values from the freshman to senior year as well as during the freshman, sophomore, junior, and senior years.

To study the relationship between scholastic performance in Social Science and/or Humanities and selected cognitive and affective variables, partial correlations and multiple R's were computed. The total remaining population was used.

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[24] The test-retest populations were as follows: Freshman Year, - 2,219; Sophomore Year - 414; Junior Year - 430 ; Senior Year - 1051 . Tests of significance revealed no marked differences between respondents and non-respondents at each phase.

To study the factors associated with changes in attitudes and values, both questionnaires and intensive interviews with sophomores and juniors were used. When concerned with the relationship between type of change and biographical characteristics, chi-square was used.

Because of initial sex differences, the data were analysed separately for males and females.

Major Findings

The major results of this study may be summarized as follows:

1. Males are significantly more stereotypic, dogmatic, and unreceptive to new ideas than females. Males are significantly more traditional-value oriented than females.

2. Males have significantly higher mean scores on the theoretical, economic, and political scales of the Study of Values Test than females. Females, on the other hand, score significantly higher in the aesthetic, social, and religious scales than do males.

3. Catholic students are the most stereotypic and dogmatic and have the highest traditional-value score. Jewish students are the least traditional-value oriented.

4. There are significant differences in attitudes and values of Protestant students coming from the liberal and fundamentlist sects. The latter are significantly more stereotypic and dogmatic.

5. Females majoring in the non-technical curricula are less stereotypic and dogmatic than their vocationally-oriented peers. Males in the physical and biological sciences are least stereotypic in their beliefs.

6. There is no significant difference in attitudes and values between those students whose parents are native-born Americans and those students whose parents are foreign-born.

7. There is a significant relationship between value orientation and rural-urban background for both males and females. Students from the rural areas have higher mean traditional-value scores.

8. For the males only, there is a relationship between stereotypic beliefs and dogmatism and rural-urban background. While students coming from the farm are most stereotypic and dogmatic, those from the village and small city are least stereotypic and dogmatic.

9. There is a significant relationship between socio-economic status as measured by father's occupation and/or level of parental education and attitudes and values. Those students from the lower social stratum tend to be more stereotypic and have higher traditional-value scores than students from the upper-middle or upper social stratum.

10. Socio-cultural-educational-curricular differences in attitudes and values exist even after adjustments are made in terms of critical thinking and/or CQT socres.

11. For both males and females, there is a positive and significant relationship between the measures of stereotypy, dogmatism, and personality rigidity.

12. For the most part, there is no relationship between the Inventory of Beliefs, Rokeach's Dogmatism Scale, Wesley's Rigidity Scale, the Study of Values Test and either the traditional or emergent scales of the Differential Values Inventory.

13. There is a significant relationship between the measures of stereotypy and dogmatism. The data, however, suggest that certain traits measured by one are not necessarily measured by the other.

14. The analysis of data of freshman year withdrawals yielded three discriminant functions whose latent roots were signficant at the .05 level of confidence--an intellective factor, a socio-cultural factor, and a social background factor-- and three discriminant functions whose latent roots were not significant at the .05 level. The data suggest that collegiate persistence depends primarily upon intellectual ability. Nevertheless certain affective factors such as attitudes, motivation, and interest should not be neglected.

15. For both males and females, there is a higher correlation between stereotypic beliefs and final examination grade than between stereotypic beliefs and instructor grade. This is true for each of the three terms work in Communication Skills, Natural Science, Social Science, and Humanities. A similar tendency is also evident in the relationship between dogmatism scores and measures of scholastic performance.

16. For the most, there is no significant relationship between scholastic performance and traditional-value orientation for both males and females.

17. For both the males and females, the inclusion of a battery of affective variables contributes very little to the overall prediction of academic success. This is so whether the measure of academic success is in terms of grade-point-average or grades in specific general education courses.

18. The CQT score is the best single predictor of academic success as measured by grade-point-average.

19. The best single predictor of grades in Social Science is the MSU Reading Test.

20. Students who are highly stereotypic and dogmatic tend to receive higher grades from their instructor than is warranted by their general academic aptitude.

21. In nearly all instances, there was a significant improvement in critical thinking ability, a lessening of stereotypic beliefs, and a movement away from the traditional-value orientation in each of the freshman, sophomore, junior, and senior years. The only exception was for changes in value orientation for both males and females during the senior year. Although the previous college years demonstrated a trend from "inner" to "outer-or-other" directedness, the senior year did not evidence such a change. In fact, it would appear, that after the junior year, a plateau is reached with respect to value orientation of college students.

22. Although the changes from the freshman to senior year are statistically significant, the data suggest that the major changes take place sometime during the first two years of college. In fact, the changes in critical thinking ability and value orientation are of greatest magnitude in the freshman year.

23. With only one exception, (dogmatism for males), there is greater homogeneith at the end of the senior year than there was at the beginning of the freshman year.

24. In the majority of instances, there is substantial agreement between males and females insofar as their perception of selected religious concepts (God, Sin, Prayer, Eternity, Man, and the Bible) is concerned. As entering freshmen, females tend to be more conservative and absolute than males with respect to their conception of the Bible. At the end of four years, however, both males and females are more liberal and realistic.

25. Students, in general, become more flexible and less authoritarian from their freshman to senior year; change their attitudes towards people of different races, creeds, and religions; change their views and opinions about standards of behavior; become more aware of their own goals in life; develop a better understanding of other people; have greater confidence in their ability to deal with new problems; have a more realistic outlook towards the future; and begin to question the absolutes in life insofar as they pertain to moral and religious conduct.

26. Students, in general, feel that the most significant thing that has happened to them or that they have learned while at college was to get along with all types of people. Although many do not necessarily agree with the views and opinions of their peers, they have developed or at least adopted a "live and let live" philosophy.

27. College students, regardless of their level, are highly resentful of any rules and regulations which they feel interfere with their dependence.

28. Although college freshmen are initially concerned with obtaining grades and being prepared for a specific vocation, as seniors, they attach more importance to grades and more importance to obtaining a well-rounded education which includes general education courses.

29. The majority of seniors feel that college professors should be allowed to subscribe to any political or ideological belief they wish. However, these same students feel that the faculty should not interefere with the students' behavior.

30. There is substantial agreement between male and female seniors with respect to their conception of the characteristics of a good college teacher. Both conceive a good college teacher as a person who makes his students produce, who knows his subject matter, who can teach in an entertaining fashion, and who grades objectively.

31. Insofar as the importance of general-education goals of a college education are concerned, there is substantial agreement as to their importance not only between males and females but also among students majoring in different curricula.

32. A sizable number of students indicated that they felt they had undergone no marked change in their attitudes, values, beliefs, and interests while at college.

33. A small percentage of students have changed in what might be termed a negative direction, that is, they became more stereotypic and prejudiced in their views, became less tolerant of others, became less receptive to new ideas, and became more authoritarian.

34. A significantly larger proportion of students feel that they have become less attached rather than more attached to a religion that they believe in and can defend. Interestingly enough, however, is the fact that this trend is not accompanied by a proportionate increase in the number of students who have less feeling for the value of religion in order to live a mature life.

35. The most significant experience in the collegiate lives of these students has been their association with differeing personalities in their living unit. Although the peer group, comprised of the total body of students, did not have too much impact upon the behavior of these students, the analysis of interview and questionnaire data strongly suggested that discussions and "bull-sessions" were a potent factor in shaping the attitudes and values of these college students.

36. Instructors and/or courses were infrequently mentioned by these students as having had some impact upon their behavior or perspective in life.

37. After controlling for differences in critical thinking ability among students at three midwestern colleges (two church-affiliated liberal arts colleges and a large state university), there is no significant difference in dogmatism and traditional-value orientation for both males and females. There is, however, a significant difference in stereotypic beliefs among the males at the three colleges.

38. There does not appear to be an atypical or unique personality characteristic or set of characteristics that distinguish students at the three midwestern colleges surveyed. However, students at a large state university have the highest mean critical thinking ability score.

39. Students who change major, especially those with a poor academic record, have certain personality characteristics that distinguish them both from students who do not change their major and students who change major but have at least a 2.00 GPA (where A=4).

40. There is no perceptible difference in either cognitive or affective measures between those students who do not change major and those who do change their major but have a 2.00+ GPA.

41. Before the junior year, courses and instructors were rarely mentioned as having a marked impact upon student attitudes and values. From the junior year on, however, the formal, academic experiences (especially courses and instructors in the students' major) began to assume increased importance. One might conclude that whereas the formal, academic experiences prior to the junior year were subordinate to the informal, non-academic experiences, the converse is true after the sophomore year.

42. Courses and instructors in the general education area were more frequently mentioned by both juniors and seniors as having had a reinforcing rather than a modifying effect on their personality development.

43. Both males and females were influenced to a considerable extent by their peers. However, it would appear that females were more susceptible to the influence of their peer group than were the males.

44. Of all the experiences mentioned by juniors and seniors (both males and females) as having had a reinforcing or modifying effect, instructors and courses in the humanities were most frequently chosen.

Some Implications for Higher Education

1. The fact that there are significant socio-cultural-educational-curricular differences in attitudes, values, and critical thinking ability suggests that our colleges and universities should attempt to learn more about their student bodies. This is especially true when one considers that many affective factors are directly related to the students' academic performance.

2. Colleges and universities should seriously consider the use of a common term-end examination wherever this is practically feasible. Often students, because of certain personality characteristics (call it personality disposition if you wish) such as flexibility or adaptiveness or non-conformity may be termed under-achievers when in reality they are being severely penalized by an instructor who employs subjective rather than objective criteria in the assignment of grades.

3. Although the cognitive measures employed in this and other studies account for the largest variance in prediction of academic success, it is readily evident that over 40 per cent of the variance is not accounted for in terms of an intellective factor. This suggests that attention should be given to a more thorough study of those affective factors that no doubt play an important role in determining scholastic performance.

4. Although there were marked changes in critical thinking ability, attitudes, and values from the freshman to senior year, it was seen that the changes were of greatest magnitude during the freshman and sophomore years. This raises a question of whether these changes are so great at this time because of maturation or because of certain experiences that the student encounters at this time. If it is the latter, it would appear that our institutions of higher education should be cognizant of this and should attempt to isolate these experiences so they may provide the student at this malleable stage of his life.

5. The magnitude of change in certain beliefs, ideals, interests, and attitudes certainly leaves much to be desired in terms of the professed aims and objectives of colleges and universities. College personnel should not feel complacent in what has occurred. In fact, one might have expected that for some students, at least, the change would have been more drastic.

6. The fact that some students do change while others do not should not be interpreted with despair. It is quite conceivable that change for some can be deemed as desirable as no change for others. However, we must marshall all our resources and attempt to provide the most meaningful experiences for our college students, especially those for whom we feel that change is desirable. Parenthetically, we must remember that this and other suggestions are predicated on the belief that colleges have a deep concern for areas of development other than intellectual or vocational.

7. Inasmuch as the most significant thing that has been learned by college students is their ability to get along better with all types of people, and since the factor most frequently mentioned by students as having an impact on their behavior was the "bull-session" or discussion in the living unit, it would be advisable for our colleges and universities to seriously consider the possibility of providing a dormitory that will provide learning as well as living facilities.[25]

We should recognize that the discussions taking place in the dormitory are seldom upon topics that are generated spontaneously by the students themselves. On the other hand, these topics do not come from the vacuum. It is conceivable that an instructor or course laid the first brick in the foundation and hence, anything which can be done to bridge the gap between classroom and informal discussion groups would no doubt be of immeasurable value in helping bring about change.

8. Neither instructors nor courses in the general education area were mentioned frequently as having a marked impact upon student personality development. And yet, students said that instructors and courses in their major had a marked effect in modifying their attitudes and values. These findings should be interpreted with extreme caution. They do not necessarily imply that general education experiences are ineffectual in altering, modifying, or reinforcing college students' attitudes and values. On the contrary, students said that these general education courses did have an impact upon their behavior but that there were other experiences, such as friends and courses in their major, that had more impact. It is conceivable that the academic

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[25] Michigan State University now has such a plan in operation. It is hoped that further research will be undertaken to thoroughly evaluate the significance of such a living-learning arrangement insofar as attitudes and values are concerned.

experiences in students' major area were called to mind more readily because they were more recent. Or, it is possible that these students are still not fully aware of the value of general education courses and hence are unable to isolate any experience that had a marked impact on their attitudes and values.

9. Institutions of higher education should conceive the college years as a period of experimentation and groping. Our faculty should realize that college students will be questioning, sometimes demanding, and often independent. In the light of the needs of individuals in a changing society and the needs of society itself, this is good and should be encouraged to its fullest. Until we realize that for these students there is no completely closed system of absolutes, we will be remiss in our obligation if we do not foster and promote experimenation on the part of the student. In some instances, this may be achieved by such things ad independent study, removal of formal living regulations, freedom of speech, and so forth. Whatever the medium or media which may be employed, the most important thing that college faculty must recognize is that these students are looking for and seeking answers, but they don't want to be hampered by undue interference.

10. In order for any individual to fully realize the value of his education insofar as it pertains to future conduct, it is necessary for him to feel that he is part of the group, that is, that he has contributed something. It is therefore suggested that college personnel consider student opinion insofar as academic and even non-academic decisions are concerned. Until this is realized, college students will feel that the institution's aims and philosophies are being foisted upon them.

11. Although it is agreed that attitudes and values are instilled early in life and are most modifiable in infancy and adolescence, it is readily evident that changes take place from age eighteen to twenty-two or older. It is

imperative that our colleges and universities recognize this and discard the notion that behavior characteristics are not their concern because it is too late to do something about them.

12. Attitude changes were generally in the direction of acceptance of more conventional positions, reflecting perhaps a tendency toward conformity to prevailing cultural values and attitudes.

It is quite conceivable that the changes in attitudes and values over the four year period are a reflection of cultural attitudes which prevail in a college setting. It is quite conceivable, that for some students, campus attitudes are more flexible, or even more conforming, than those practiced in the students' pre-college environment.

If we define belief as the "probability dimension of a concept" and "attitude" as the evaluative judgment, we might conclude that changes in attitudes towards a given concept are really the result of changes in belief about that concept (Fishbein & Raven, 1962). This would suggest that it might be difficult if not impossible to alter attitudes, per se, but that the alteration of beliefs will be accompanied by an attitudinal change. Hence, it would appear that the improvement in critical thinking ability; the contacts with different types of students; and the experiences gathered in "bull-sessions" are all facets that attack the basic beliefs of the individual, resulting in some attitudinal change. However, why these experiences should be more potent than those generated in the classroom or by the instructor especially during the first two years of college is not too clear at this time.

A Personal Point of View

1. Colleges and universities should not attempt to change attitudes and values by indoctrination. Rather, they should attempt to make students become more objective, scientific, and rational in their approach to the solution of

problems. This will encourage internal rather than external initiation of value change. Our institutions of higher education should try to avoid inculcating values by rules or pressure lest they promote unthinking conformity.

2. No attempt should be made to bring about value changes until the student has been made aware of his own values and the need for change. This then suggests that our institutions of higher education should not seek to avoid the recognition by the student of varying values and of value conflicts. Going one step further, colleges should not restrict their enrollment to a particular type of student exemplifying pre-ordained attitudes and values. If this were done, students would be denied one of their greatest teachers - their peers. For we have seen that it is in discussions with other students that much opportunity is afforded students to examine their views and beliefs and contrast them with those held by others. Unless comparisons are made possible it is doubtful whether existing values will have any degree of stability. Furthermore, comparative groups give rise to provocative thinking and may encourage originality and creativity.

3. Higher education should give more consideration than has previously been done to the development of <u>process</u> values (that is, those which relate to the manner in which judgments are made and decisions are arrived at), and <u>less</u> to ultimate values which are often ambiguous (truth, beauty, goodness, and so forth). If the emphasis were increased on the process values, the individual would be well-equipped to cope with future value conflicts.

4. Higher education has an obligation to provide the student with knowledge so that he will be capable of continuing in his independent search for further knowledge. Hence, our colleges and universities should encourage the maximizing of self-determination and appraisal on the part of its students.

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APPENDIX "A"

FRESHMAN-YEAR EXPERIENCE INVENTORY

Each of the following statements relates to some experience you may have had during the past year at Michigan State. Each statement should be marked true or false in the appropriate spaces on your IBM answer sheet. Read each statement carefully, giving special attention to the frequencies or number of times involved in the experience. Mark the item true on your answer sheet, if it is true for you, or false if it is false for you.

1. I go home (on the average) three times or more a term.
2. Only one or two students in any given class this term have ever been in the same section of a course with me before.
3. During this year, I was an officer, or held a position of leadership in an extracurricular club, activity, committee, etc. (dorm, fraternity, all-university, etc.).
4. I have sold more than 75% of my textbooks this year.
5. I date less than twice a week.
6. I read the State News each day.
7. I have seen one of my instructors about a personal, non-academic problem.
8. I attend one of the local churches in Lansing or East Lansing at least three times a month.
9. I am taking less than 16 credits this term.
10. I eat with the same group of friends each evening.
11. I have a (boy or girl) friend in my home town whom I date.
12. I have not had the same instructor twice this year.
13. I attended all of the home football games this year.
14. Most of my electives do not relate directly to my major.
15. I prefer the big dances and parties sponsored by the dorms, fraternities, and all-univsity government more than the less organized, informal types of things.
16. During this year, I have had some rather serious doubts as to whether Michigan State is actually the best school for me.
17. Most (more than half) of my instructors this term do not know me by name.
18. I am a member of at least two extracurricular clubs, activities, or committees.
19. Most of what I have learned this year in college, I have obtained through class lectures and assignments.
20. The most important factor in attending any social affair is the person or group of peopl who will be there; the particular kind of social function (i.e., movie, party, dance, cards, etc.) is of less importance.
21. I lived in a residence hall my first two terms at M.S.U.
22. Most of the "bull-sessions" or discussions in which I participate discuss academic question such as the nature of man, world affairs, questions stimulated in courses, etc.
23. I did not obtain any dates through the assist ance of the dorm social chairman.
24. When I go to see an instructor outside of class it is always for something dealing with an assignment.
25. My roommate is my closest friend this year.
26. I write letters home (friends and family) abo twice a week, or more.
27. I have never gone to see any one instructor more than once outside of class.
28. I saw less than four home basketball games this year.
29. I have not found any of my courses to be extremely interesting this year.
30. I spend less than an hour a day in "bull-sessions" or discussions with my friends.
31. I intend to receive my degree from M.S.U.
32. During this year, I went to hear a visiting speaker or lecturer sponsored by a department on campus, the Honors College, or the lecture-concert series.
33. I participated in less than half of the dorm or living unit sponsored activities.
34. I study during most of my out-of-class time.

TURN TO BACK OF PAGE.

APPENDIX "A"

35. I rarely decide in advance how I am going to spend my spare time, and prefer to do things on the spur of the moment.

36. I do not go home as often as I want to.

37. I spend more than two hours a week in the library.

38. I talked to my head resident advisor or my R.A. in the dorm about a personal problem.

39. I have "cut" most of my classes at least two or three times.

40. I have a close group of friends and we do most things together.

41. My home is more than 50 miles from M.S.U.

42. I attended no concerts sponsored by the University.

43. I would say that I have attended most of the really big social events on this campus this year.

44. Almost all of my time in the library is spent reading the various class assignments.

45. I do not regularly date the same person at M.S.U. (i.e., go steady)

46. About the only time I spend on campus is for my classes.

47. I have gone to see an instructor, although I was not at the time taking a course from him.

48. I did not pledge a fraternity or a sorority.

49. I usually attempt to complete my course work reading before doing any non-course reading.

50. I usually spend more than 15 or 20 minutes a day in the Grill, Kewpee's, or a similar student gathering place.

Listed below are several different kinds of experiences. Some may have been important and significant to you during the year, and others unimportant. Look through the list and choose the FIVE (5) most important or significant and the FIVE (5) least important or insignificant experiences.

On your IBM answer sheet, BLACKEN THE SPACE FOR TRUE for the Five (5) most important or significant experiences. Be sure to blacken the space on the answer sheet which corresponds to the experience number. ALSO, blacken the space for FALSE in the appropriate number on your answer sheet for the five experiences which have been least important or insignificant for you.

51. Social Science

52. An instructor

53. A person I dated

54. Athletic events

55. Natural Science

56. My friends here

57. Counseling Center

58. The Grill, Kewpee's, etc.

59. My Head Resident Advisor or R.A.

60. Discussions or "Bull-sessions"

61. Lecture-Concert series

62. My fraternity or sorority

63. Extracurricular activities

64. Communication Skills

65. Reading

66. Church

67. Where I live

68. A close friend

69. Parties

70. My family

APPENDIX "B"

FRESHMAN YEAR INTERVIEW GUIDE

In the freshman, sophomore, and junior years, interviews were held with random samples of the population studied in an attempt to ascertain their reactions to a variety of experiences, situations, etc. Inasmuch as the procedure differed slightly from one set of interviews to another, they will be discussed separately.

During the first few weeks of the term, a random sample of the new entering freshman class were interviewed in a rather structured type of situation. The general directions were as follows:

> We are extremely interested in learning more about the ideas college freshmen have concerning college. I appreciate you coming in to talk with me for a few minutes today. I know the life of a college student is a busy one. I'm going to ask you to be rather introspective and to look at some of your views and ideas concerning college, both now and before you arrived on campus. I invite you to be honest and frank with me. What you tell me will be of great value in learning more about college freshmen, but will in no way affect your grades or records. What you say is completely confidential.

After making certain that the student understood what was being attempted and was at ease, the interviewer proceeded with the following questions:

1. Tell me some of your initial impressions of college life. I realize you have been here only a short time, but during the time you have been here, what have you enjoyed most about college life?

2. What one thing have you disliked most about college?

3. What is the most interesting thing that has happened to you since you arrived on campus?

4. Could you pick out anything that has made an unusual impression on you? That is, some experience that you have had that may have changed your outlook on college or on life; something that may have caused you to change your attitude or values?

5. Has there been one experience which you have had which you would consider particularly beneficial to you since you arrived on campus?

6. Has anything happened to you since you came to college that you feel was non-beneficial or that you have disliked?

7. I'm going to ask you to think back now, to the time before you came to college. When you thought of how college life might be, what came into your mind? Just how did you picture college before you arrived on campus?

7.1 Where did you get these ideas?

7.2 How has this conception of college life which you had before you came to State changed, now that you have had a real taste of college life?

8. Why did you come to college?

9. What do you want most to get out of college?

10. When did you decide to come to college?

11. How did you happen to choose Michigan State?

12. Before you came to college, and you thought of a college professor, what came to your mind? What kind of person did you think of? Has that picture changed now?

13. Are college classes as you expected them? Do you find a great deal of difference between college and high school classes?

14. Residence hall living is somewhat different from living in your own home, isn't it? Could you tell me something about your first impressions of residence hall life? (Roommate, resident adviser, precinct, food, discipline, etc.).

15. Many college students don't know what to expect before they come to college and wonder about certain things. Were you concerned about anything connected with college life before you arrived on campus?

16. You probably had some idea about college social life before you arrived on campus. Has your opinion of college social life changed during the few weeks you have been here?

17. Picture yourself, if you can, 10 or 15 years from now. What kind of life do you expect to lead?

17.1 What size of company or organization do you wish to work for?

17.2 Do you plan to be married or single? (If married, how many children)

17.3 Generally, speaking, what kind of friends do you hope to have?

17.4 What size of community do you plan to live in?

17.5 Do you plan to take part in community activities in government, church, social clubs, civic clubs, etc.?

17.6 Do you wish to own your own home or rent?

17.7 If you were to have a vacation in 10 or 15 years from now, say for a period of a month, what would you do?

18. Would you say that you are a typical college freshman, or do you feel yourself to be different in some way or other from the majority of freshmen? (If different)- Why or in what way?

APPENDIX "C"

SOPHOMORE YEAR INTERVIEW GUIDE

Near the end of the sophomore year, a random sample of "changers" and non-changers was interviewed in an attempt to delve more deeply into their views and those experiences which they felt might have had some impact upon their behavior and/or perspective in life, viz. attitudes and values. The general directions were as follows:

> You no doubt are aware that we have selected the 1958 freshman class as a group of students who will be studied throughout their four years at Michigan State. We have already learned a great deal about you from the tests that you took at the beginning and end of your freshman year. However, there are some things that we would like to discuss with you in more detail and feel that this could only be done by talking to you personally.
>
> Everything that you discuss with me will be held in strictest confidence. For that reason, we would like you to be frank and honest in your replies. There are no hidden microphones here but I will jot down things from time to time so that I will have some record of your views. Before we start, are there any questions that you have? If the question I ask appears to be ambiguous or unclear, please say so. We are not trying to trick you.

1. What do you think about MSU?

2. What DID you think about MSU before you came here?

3. What experiences have you had here that made some impression upon you? that may have altered the way you feel and think? that may have had some effect on your perspective in life? (We let the subject talk freely and when he came to the end, we made sure that we had his reactions to the impact of courses, instructors, social and cultural activities, dormitory life, sorority or fraternity membership, conformity to campus mores, living away from home, administrative rules and regulations, a close friend and/or peer group. We then asked each subject whether there were any others?)

4. What "rates" a person on campus? What makes a person a BMOC?

5. Do you think that you have "changed" in the time you have been here? Do you feel that you are different now in comparison to when you were a freshman? In what way? Do you feel you had to change? Why?

6. What do you think are the important things in life? Have you always felt this way?

7. What are your views on the racial tension in South Africa? Do you think that we have a similar problem in the U.S. with segregation?

8. What do you think about Kennedy for President?

Although the interviewers were guided by these questions, they did not cut off the discussion when the subject tended to stray from the issue at hand. Throughout the interviews, the interviewers probed carefully to elicit as much information as possible, attempting as much as possible to be natural in the probing. At the end of the interview, the subject was asked whether or not he (or she) wished to comment any further.

APPENDIX "D"

JUNIOR YEAR INTERVIEW GUIDE

The procedure employed during this series of interviews was similar to that used in the Sophomore Year interviews. Since some of the questions asked differed, we will now present the items discussed at this time.

1. Would you recommend MSU to a younger brother or sister?

2. What would you say has been the most significant thing learned or that has happened to you since you have been at MSU?

3. What is your major? Did you change? Why? Why did you choose your present major? Did anybody influence your decision? Who? How?

4. Have you had any experiences here that you feel have had some impact on you? i.e. altered or reinforced your perspective in life? What were these experiences? How did they affect you? How much impact did they have on your behavior? (Once again, the areas discussed in Question 3 of the Sophomore Year Interview guide, were asked if the subject did not volunteer the information).

5. What should college do for or to a person? What do you think that your two-and-one-half years here have done for or to you? Do you think that you have changed since you came here as a freshman? In what way? Why?

6. Do you feel that you have been "gypped" in your education? In what way? (For subjects answering YES)--Why did you stay here? What was the most disappointing thing so far as your education is concerned?

7. Other than dating, how do you spend your leisure time?

8. What topics of conversation are most frequently discussed in your leisure time?

9. Is there any one person whom you feel has had a marked impact on you? In what way?

10. What are your views on the Congo situation?

11. After graduating from college, would you be willing to return to your hometown? Why?

12. What do you think about the morals and values of college students?

13. If you were to become President of MSU, what is the <u>first</u> thing that you would change?

14. What do you feel about President Hannah's statement...."students should be encouraged to assume more responsibility for their education."

15. Do you think that you have had sufficient opportunity to associate with the faculty at MSU?

16. What views do you have concerning the religious values of college students?

In both the sophomore and junior year interviews, the subjects were asked to rate the degree of impact of each of the 10 areas according to the following scale: Does not apply to me or not aware that this affected me (0); affected or influenced my behavior slightly (1); moderate influence (2); considerable influence (3).

APPENDIX "E"

Sophomore-Junior Year Experience Inventory*

Part I: College affects or influences people in different ways; e.g., some people change in one way, others change in another way, and still others may not change at all. An experience which might have some effect on one person is ineffectual on another.

In this section, a variety of behavior traits is presented. Although all of them may not apply to you, we are interested in learning those which you feel describe changes that have come about in you during your three years at Michigan State. In other words, in what ways are you different now from what you were like when you entered as a freshman?

Read each of the statements below and give your frank opinion. Since there are no right or wrong answers, do not spend too much time on any one of the statements. Do not skip any items. Key each item as follows, putting the number of your choice in the blank column at the left of each column.

Key: 1. More (i.e., I tend to possess more of this quality.)
2. Less (i.e., I tend to possess less of this quality.)
3. Same (i.e. I am not conscious of any change.)

_____1. Tolerance of people differing in race, creed, color, or religion.

_____2. Concern about the future.

_____3. Respect for the views and opinions of other people.

_____4. Dependence upon other people.

_____5. Awareness of my own goals in life.

_____6. Tolerance of immoral behavior.

_____7. Interest in world affairs.

_____8. Concern about the present.

_____9. Feeling that a major aim of college is to prepare one for a profession or vocation.

_____10. Feeling that college should also stress a liberal-arts type of education.

_____11. Acceptance of the Bible as a guide to modern living.

_____12. Ability to accept new ideas.

_____13. Feeling that money is important.

_____14. Feeling of the necessity for religious faith to achieve a mature philosophy of life.

_____15. Attachment to a religious sect or denomination that I can believe in and defend.

_____16. Commitment to a set of religious beliefs.

_____17. Understanding of the behavior of people.

_____18. Confusion as to what I want out of life.

_____19. Drive to get ahead as quickly as possible.

_____20. Confidence in my ability to deal with new problems.

_____21. Desire to accept a job for the satisfaction it has to offer rather than the salary it pays.

_____22. Realistic outlook towards the future.

_____23. Idealistic outlook towards the future.

_____24. Feeling that a college education is necessary to succeed in the world.

_____25. Responsibility for my own education.

_____26. Dependence on the teacher for my education.

_____27. Importance of classroom attendance.

_____28. Importance of grades as measures of achievement.

_____29. Respect for rules and regulations.

_____30. Ability to get along with other people.

(Please turn the page)

*Part I administered only to Juniors.

APPENDIX "E"

Part II: Listed below are courses, personnel, activities, and organizations which probably had some influence on you since you came to college. We are interested in knowing which ones of these have influenced you most.

Place a ✓ before those which you feel have either strengthened or reinforced your attitudes, values, opinions, beliefs, and interests. Place a ✓✓ before the THREE you feel had the most reinforcing influence.

Place an X before those which you feel have modified or altered some of your attitudes, values, opinions, beliefs, and interests. Place a XX before the THREE you feel had the most influence.

_____ 1. Communication Skills 111
_____ 2. Communication Skills 112
_____ 3. Communication Skills 113
_____ 4. Natural Science 181
_____ 5. Natural Science 182
_____ 6. Natural Science 183
_____ 7. Social Science 231
_____ 8. Social Science 232
_____ 9. Social Science 233
_____ 10. Humanities 241
_____ 11. Humanities 242
_____ 12. Humanities 243
_____ 13. A course in your major
_____ 14. Any other course
_____ 15. A Social Science instructor
_____ 16. A Humanities instructor
_____ 17. A Natural Science instructor
_____ 18. A Communication Skills instructor
_____ 19. An instructor in your major
_____ 20. Any other instructor
_____ 21. Social events
_____ 22. Athletic events
_____ 23. Lecture-Concert Series
_____ 24. Extra-curricular clubs
_____ 25. Participation in athletics
_____ 26. Fraternity or sorority
_____ 27. Close friend(s)
_____ 28. Roommate
_____ 29. Discussions or "bull-sessions"
_____ 30. Counseling Center
_____ 31. Library
_____ 32. Mental Hygiene Clinic
_____ 33. Improvement Services
_____ 34. Living quarters
_____ 35. Church
_____ 36. Housemother
_____ 37. R.A. or Head R. A.
_____ 38. Employment
_____ 39. A person I dated
_____ 40. Family
_____ 41. Conduct patterns of faculty
_____ 42. Conduct patterns of students
_____ 43. Academic adviser
_____ 44. Campus regulations
_____ 45. Being away from home
_____ 46. ROTC
_____ 47. Physical Education
_____ 48. Honors College Membership
_____ 49. Conforming to campus mores
_____ 50. Honorary Societies

APPENDIX "F"

Cooperative Study on Attitudes and Values of College Students

SENIOR-YEAR EXPERIENCE INVENTORY

It is highly desirable that institutions of higher learning attempt to ascertain the opinions and observations of members of its student body in regard to those aspects of the university experiences which are felt to be of importance.

This inventory consists of various sections--some consist of your reactions to the objectives of college; some require an appraisal of the effectiveness of your college experiences; and some require your views on a variety of different topics. It is hoped that you will feel free to give frank and sincere responses. Your cooperation in this endeavor will insure that your institution will have a more accurate perspective regarding its programs and their effectiveness. All information will be treated as confidential and will be used for research purposes only.

Before beginning work please record your (1) Name, (2) Date, (3) Name of school, (4) Student Number, and (5) Academic class i.e., (Freshman, Sophomore, etc.) in the appropriate spaces below.

* * * * * * * * * * * * *

Name _____ Date _____
Last First Middle

Student Number _____ Academic Class _____ School _____

* * * * * * * * * * * * *

General Directions: Each of the questions on this inventory can be responded to by means of a coded key. For each question, write the code number of the answer appropriate to you in the code column blank at the right. Please read each question carefully and make sure that you are using the appropriate code. Answer all items.

* * * * * * * * * * * * *

Part I: Questions 1 - 5

Compare how you thought your four years of college would go with how you actually found it according to the following code:

	Code
More than I thought	1
Same as I thought	2
Less than I thought	3

	Code	IBM No.
1. Time spent on studies.	____	(7)
2. Contact with faculty	____	(8)
3. Participation in school activities	____	(9)
4. Dating	____	(10)
5. Prejudice because of social or religious background	____	(11)

* * * * * * * * * *

Part II: Questions 6 - 11

Below are a number of statements. Please rate each of them in terms of your own experiences using the following code:

	Code
Strongly agree	1
Agree	2
Disagree	3
Strongly disagree	4

	Code	IBM No.
6. Generally, I found my classes pretty interesting.	____	(12)
7. Most of my instructors were enthusiastic about their teaching.	____	(13)
8. College is not as tough as I thought it would be.	____	(14)
9. Generally, I spent less time on my studies than I thought I would.	____	(15)
10. Getting good grades does not seem as important now as it once did.	____	(16)
11. This is the kind of school a person should go to if he really wants a good education.	____	(17)

* * * * * * * * *

Part III: Questions 12 - 29

The following questions refer to some general reactions that you might have about a variety of issues. Please react to each question using the following code and mark your answer in Code Column A.

	Code
Strongly agree	1
Agree	2
Disagree	3
Strongly disagree	4
No opinion	5

	Code A	IBM No.	Code B	IBM No.
12. Red China should be admitted to the U.N.	____	(18)	____	(36)
13. College professors should be allowed to subscribe to any ideological or political belief they wish	____	(19)	____	(37)
14. College professors should be required to take a loyalty oath.	____	(20)	____	(38)
15. My friends have had more impact on my views and beliefs than have courses or instructors.	____	(21)	____	(39)
16. A student should report another student cheating on an examination.	____	(22)	____	(40)
17. College teachers, on the average, tend to be conservative	____	(23)	____	(41)
18. College tends to liberalize one's views	____	(24)	____	(42)
19. I am satisfied with my grades	____	(25)	____	(43)
20. I know exactly what I will be doing in the immediate future	____	(26)	____	(44)
21. The United States should prevent known communists from entering or visiting this country	____	(27)	____	(45)
22. Communists should not be permitted to speak on our campus	____	(28)	____	(46)
23. Medical care for the aged should be provided by the Federal government	____	(29)	____	(47)
24. The United States should continue nuclear testing in the atmosphere	____	(30)	____	(48)
25. Petting and deep-kissing are appropriate sex outlets for unmarried college students.	____	(31)	____	(49)
26. All college students should be required to take a series of general education courses	____	(32)	____	(50)
27. I wouldn't hesitate to take a towel as a souvenir from a hotel in which I stayed	____	(33)	____	(51)
28. A college education should place equal emphasis on academic and social development	____	(34)	____	(52)
29. A person in a skilled trade is worth as much to society as one in a profession	____	(35)	____	(53)

We would also like to know how you would have reacted to each of the above statements (12-29) if we were to have asked these questions when you were a freshman. Please reread the questions and try to answer them this time, reacting as a freshman. Use the same code, but place your responses in Code Column B.

* *

Part IV: Questions 30 - 38

People engage in activities in varying degrees. We would like to know how active a role you think you will want to play in each of the following, once your formal education is completed Please rate each of the activities using the following code:

	Code
Very active	1
Active	2
Not very active	3
None	4
No idea	5

	Code	IBM No		Code	IBM No
30. Local politics	____	(54)	34. Chamber of Commerce	____	(58)
31. Church activities	____	(55)	35. Men's or Women's clubs	____	(59)
32. PTA	____	(56)	36. Charitable civic groups	____	(60)
33. Scouting	____	(57)	37. Country club	____	(61)
			38. Cultural groups (Art. Music, etc.)	____	(62)

Part V : Questions 39 - 54

These sixteen questions refer to your conception of a good college teacher.

The characteristics of a good teacher are many and varied. Listed below are a number of statements which might be used to describe different faculty members. We are interested in learning your feelings regarding the characteristics of a good college teacher. Rate each of the characteristics listed below according to the following code: (Please rate each statement.)

Code: 1. Strongly agree
2. Agree
3. Disagree
4. Strongly disagree

A good college teacher	Code	IBM No.
39. is active in civic affairs. (1)	____	(63)
40. is active in campus activities. (2)	____	(64)
41. is willing to discuss a student's career plans. (3)	____	(65)
42. is willing to discuss a student's personal problems. (4)	____	(66)
43. is a person who can teach in an entertaining manner. (5)	____	(67)
44. is someone who sticks to teaching and does not act as a "buddy" to students. (6)	____	(68)
45. is active in religious affairs. (7)	____	(69)
46. is someone who really knows his field. (8)	____	(70)
47. does not give out a lot of reading assignments. (9)	____	(71)
48. is willing to help students decide on how they should stand on things like politics and religion. (10)	____	(72)
49. is someone who judges a student on his work and not on how he dresses or looks. (11)	____	(73)
50. is someone who really makes students produce. (12)	____	(74)
51. is someone who is willing to give the student a break when the student doesn't do his work. (13)	____	(75)
52. permits students to take part in deciding the course objectives. (14)	____	(76)
53. does not attempt to indoctrinate his students in a particular political, religious, or ideological belief. (15)	____	(77)
54. Of the 15 characteristics listed above, which one do you feel is the most important characteristic for a good college teacher.	____	(78) (79)

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Part VI : Questions 54a - 54c

This is the only section that requires some writing. However, this is necessitated by the fact that the information needed can only be obtained in this way. Since there are no right or wrong answers, do not spend too much time trying to conjure one up.

54(a) The most important (or significant) thing that I have learned at college is

_____

_____

_____

54(b) The experience or activity which has been most profitable to me. (what and why)

_____

_____

_____

54(c) What impact has this university had on you?

_____

_____

_____

Part VII : Questions 55 - 60

Listed below are six religious concepts. In this section, we would like to know your definition for each of the major concepts. Read the 7 statements under each concept and select the statement that most nearly agrees with your attitude regarding that concept. Record the number of the statement in the code blank at the right of the major concept.

	Code	IBM No.
55. The Bible	_____	(7)

1. The Bible is inconsistent, contradictory and exaggerated in value.
2. The Bible is a collection of myths.
3. The Bible is a great literary work expressing religious philosophy.
4. The Bible is valuable because of its inspirational effect.
5. The Bible is an account of man's experiences with God.
6. The Bible is God's revelation written by inspired men.
7. The Bible was dictated by God through the hand of man and is infallible.

	Code	IBM No.
56. Prayer	_____	(8)

1. Prayer is a direct approach to God which will always bring results if there is enough faith.
2. Prayer is communication with God.
3. Prayer is a means of bringing man into a proper relationship with God.
4. Prayer may be communion with God but how it is effected is not understood.
5. Prayer is a means of relieving anxiety.
6. Prayer can be equated with strong wishes or desires.
7. Prayer is only a superstitious practice.

	Code	IBM No.
57. Man	_____	(9)

1. Man represents no more than the highest order of evolution.
2. Man is a biological organism with distinctive powers of memory and rational thought.
3. Man is a psychological organism with spiritual needs.
4. The nature and significance of man are not determinable.
5. Man has both a body and a soul with the soul being the more essential.
6. Man is the created object of God's love.
7. Man is a descendant of Adam who was created from the dust of the earth.

	Code	IBM No.
58. God	_____	(10)

1. God is our creator and judge who observes everything that we do.
2. God exists as a divine being.
3. God exists as a supernatural power beyond man's comprehension.
4. God probably exists but no one knows what he is like.
5. The concept of God is a means of explaining the unknown.
6. God is a projection of man's unconscious mind.
7. There is no supernatural being.

59. Sin	_____	(11)

1. Sin is a religious concept used to create guilt feelings in man.
2. Sin consists of behavior which is not culturally approved.
3. Sin consists of a violation of the rights of others.
4. Sin is a violation of one's conscience.
5. Sin is a denial of our best nature.
6. Sin consists of any thought, word or deed that interferes with a proper relationship to God.
7. Sin consists of a wilful participation in worldly acts that transgress Divine Law.

60. Eternity	_____	(12)

1. After physical death there will be a judgment in which each man is sent to heaven or hell.
2. All men will some day be responsible for their relationship to God.
3. Heaven and hell are symbols of our relationship to God after physical death.
4. Probably man does not have a separate identity after death, yet he participates in a kind of immortality.
5. Man's immortality consists in the influence that he leaves behind him at death.
6. The concept of eternity is a manifestation of man's fear of death.
7. Our present life constitutes the whole of our existence.

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Part VIII: Questions 61 - 86

Below is a list of objectives which may apply to various courses and experiences in college. You are to rate them as to their importance of being achieved. Use the following code and mark your answer in Code Column A.

Code A. 1. Very important (Essential that this be achieved)
2. Average importance (Desirable that this be achieved)
3. Little importance (Not important that this be achieved)

	Code A	IBM No.	Code B	IBM No.
61. To master a classification of knowledge in a field	____	(13)	____	(39)
62. To master certain techniques applicable to one's vocation or field of special interest	____	(14)	____	(40)
63. To acquire specific information and techniques in preparation for further study in a particular field	____	(15)	____	(41)
64. To acquire and use the skills and habits involved in critical and constructive thinking	____	(16)	____	(42)
65. To develop a code of behavior based on democratic and ethical principles	____	(17)	____	(43)
66. To express one's thoughts effectively	____	(18)	____	(44)
67. To recognize the fact of world interdependence	____	(19)	____	(45)
68. To learn to get along with people	____	(20)	____	(46)
69. To acquire a degree of expertness in a special field	____	(21)	____	(47)
70. To experience a realistic sampling of one's chosen vocation	____	(22)	____	(48)
71. To attain a satisfactory emotional and social adjustment	____	(23)	____	(49)
72. To understand other cultures and people	____	(24)	____	(50)
73. To know the major developments in a vocational field or field of special interest	____	(25)	____	(51)
74. To understand the ideas of others	____	(26)	____	(52)
75. To habitually apply scientific thought to the discovery of facts	____	(27)	____	(53)
76. To bring up to date one's knowledge in a special field of interest or a vocational field	____	(28)	____	(54)
77. To become proficient in one's chosen field of work	____	(29)	____	(55)
78. To understand and enjoy literature, art and music	____	(30)	____	(56)
79. To understand one's physical and social environment	____	(31)	____	(57)
80. To develop certain manual skills	____	(32)	____	(58)
81. To move smoothly from high school to adult independence	____	(33)	____	(59)
82. To develop a broad general outlook and familiarity with a variety of subjects	____	(34)	____	(60)
83. To develop knowledge and understanding making possible a more effective choice of one's life work	____	(35)	____	(61)
84. To acquire knowledge and attitudes basic to a satisfying family life	____	(36)	____	(62)
85. To develop the ability to do significant independent research	____	(37)	____	(63)
86. To maintain and improve one's own health	____	(38)	____	(64)

We are also interest in learning the degree to which each of the objectives listed above was realized. Please rate each of the objectives in Code Column B, using the following code:

Code B: 1. Very well achieved
2. Moderately achieved
3. Not achieved

Part IX: Questions 87-125

College affects or influences people in different ways; e.g., some people change in one way, others change in another way, and still others may not change at all. An experience which might have some effect on one person is ineffectual on another.

In this section, a variety of behavior traits is presented. Although all of them may not apply to you, we are interested in learning those which you feel describe changes that have come about in you while you have been at college. In other words, in what ways are you different now from what you were like when you entered as a freshman?

Read each of the statements below and give your frank opinion. Since there are no right or wrong answers, do not spend too much time on any one of the statements. Do not skip any items. React to each statement according to the following code:

Code: 1. More (i.e., I tend to possess more of this quality.)
2. Less (i.e., I tend to possess less of this quality.)
3. Same (i.e., I am not conscious of any change.)

	Code	IBM No.
87. Tolerance of people differing in race, creed, color, or religion...	____	(65)
88. Respect for the views and opinion of other people.....	____	(66)
89. Respect for views and opinions opposite to mine.....	____	(67)
90. Tolerance of unconventional dress, behavior, and manners.....	____	(68)
91. Insight into the behavior of other people.....	____	(69)
92. Ability to get along with other people.....	____	(70)
93 Interest in political matters.....	____	(71)
94. Interest in social issues.....	____	(72)
95 Interest in intellectual and cultural matters.....	____	(73)
96. Interest in scientific developments	____	(74)
97. Interest in world affairs.....	____	(75)
98. Ability to adjust to conditions not to my liking.....	____	(76)
99 Ability to accept disappointment..	____	(77)
100 Ability to change my views in the presence of facts.....	____	(78)
101. Confidence in my ability to deal with new problems.....	____	(79)
102. Responsibility for my own behavior	____	(80)
103 Dependence on class attendance for learning.....	____	(7)
104. Feeling that the quality of one's education depends on the institution rather than the individual...	____	(8)
105. Dependence on my age group for behavior patterns.....	____	(9)
106. Acceptance of the Bible as a guide to modern living.....	____	(10)

	Code	IBM No.
107. Attachment to a religious sect or denomination that I can believe in and defend.....	____	(11)
108. Respect for law.....	____	(12)
109. Respect for rules and regulations..	____	(13)
110. Respect for persons in positions of authority.....	____	(14)
111. Feeling that money is of primary importance.....	____	(15)
112. Desire to accept a job for the satisfaction it has to offer rather than the salary it pays.....	____	(16)
113. Drive to get ahead as quickly as possible.....	____	(17)
114. Feeling that a major aim of college is to prepare one for a vocation or profession.....	____	(18)
115. Feeling that a college should also stress a liberal-arts type of education.....	____	(19)
116 Feeling that a college education is necessary to succeed in the world.....	____	(20)
117. Importance of grades as measures of achievement.....	____	(21)
118. Confusion as to what I want out of life.....	____	(22)
119. Optimistic outlook for my future...	____	(23)
120. Pessimistic outlook for my future..	____	(24)
121. Optimistic outlook for future of civilization.....	____	(25)
122. Pessimistic outlook for the future of civilization.....	____	(26)
123. Feeling of the necessity for religious faith for living in modern times.....	____	(27)
124. Commitment to a set of religious beliefs.....	____	(28)
125 Awareness of my goals in life.....	____	(29)

Part X : Questions 126 - 175

Listed below are courses, personnel, activities, and organizations which probably have strengthened or reinforced, modified or altered the beliefs that you had when you came as a freshman. We are interested in knowing which of these have influenced you the most.

Place a ✓ before those which you feel have served to strengthen or reinforce your attitudes, values, opinions, beliefs, and interests. Place a ✓✓ before the THREE you feel had the most reinforcing influence.

Place an X before those which you feel have modified or altered some of your attitudes, values, opinions, beliefs, and interests. Place an XX before the THREE you feel had the most influence.

____126. Communication Skills 111
____127. Communication Skills 112
____128. Communication Skills 113
____129. Natural Science 181
____130. Natural Science 182
____131. Natural Science 183
____132. Social Science 231
____133. Social Science 232
____134. Social Science 233
____135. Humanities 241
____136. Humanities 242
____137. Humanities 243
____138. A course in your major
____139. Any other course
____140. A Social Science instructor
____141. A Humanities instructor
____142. A Natural Science instructor
____143. A Communication Skills instructor
____144. An instructor in your major
____145. Any other instructor
____146. Social events
____147. Athletic events
____148. Lecture-Concert Series
____149. Extra-curricular clubs
____150. Participation in athletics
____151. Fraternity or sorority
____152. Close friend(s)
____153. Roommate
____154. Discussions or "bull-sessions"
____155. Counseling Center
____156. Library
____157. Mental Hygiene Clinic
____158. Improvement Services
____159. Living quarters
____160. Church
____161. Housemother
____162. R.A. or Head R.A.
____163. Employment
____164. A person I dated
____165. Family
____166. Conduct patterns of faculty
____167. Conduct patterns of students
____168. Academic adviser
____169. Campus regulations
____170. Being away from home
____171. ROTC
____172. Physical Education
____173. Honors College Membership
____174. Conforming to campus mores
____175. Honorary Societies

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Part XI : Questions 176 - 182

In every college that we know of, some students seem to have a very high standing, and some seem to have a low standing. But the reasons seem different in the different colleges and universities.

Listed below are nine factors which might lead to high prestige. We would like to know those factors which you feel to be important to students, to faculty, and to both students and faculty. The factors are as follows:

1. Being original and creative
2. Having a pleasing personality
3. Demonstrating scholarly capacity
4. Being active in campus activities
5. Dedicating yourself to your studies
6. Not being too critical
7. Coming from the right social background
8. Being active in varsity athletics
9. Being a member of a fraternity or sorority

	Code	IBM No.
176. As a freshman, which of these factors did you feel gave a student prestige with the faculty?	____	(30)
177. Now that you have nearly completed college, which of these factors do you feel gives a student prestige with the faculty?	____	(31)
178. Which single factor do you feel is the most important with the faculty?	____	(32)
179. Which single factor do you think should be most important to faculty?	____	(33)
180. Which factors do you feel give a student prestige with his fellow students?	____	(34)
181. Which single factor do you think is most important to students?	____	(35)
182. Which single factor do you think should be most important to students?	____	(36)

Part XII: Questions 176 - 180

In every college that we know of, there are different kinds of students who enjoy doing different kinds of things. Listed below are some comments or descriptions about the kinds of students you might find in any American college. Read each of these over and then answer the questions which follow as best as you can. We know that it is difficult to "peg" yourself in some slot but please make a choice for each of the five questions. Place the LETTER of the TYPE which most accurately describes you in the blank column at the right.

TYPE W: This kind of person is interested in education, but primarily to the point of preparation for his occupational future. He is not particularly interested in the social or purely intellectual phases of campus life, although he might participate in these activities on some limited basis. This person does his homework so that grades can be maintained, but otherwise restricts his reading to the light, general entertainment variety. For the most part, this person's primary reason for being in college is to obtain vocational or occupational training.

TYPE X: This person is interested in learning about life in general, but in a manner of his own choosing. He is very interested in the world of ideas and books, and eagerly seeks out these things. Outside of the classroom, this person would attend such activities as the lecture-concert series, Provost lectures, foreign films, etc. This person wants to go beyond the mere course requirements and will frequently do extra readings in order to obtain a more complete understanding of the world in which he lives. From a social point-of-view, this persons tends to reject fraternities, sororities, and the social events that are a part of campus life. When this person does join, it will usually be one of the political or more academic campus organizations. For the most part, this person would consider himself to be someone who is primarily motivated by intellectual curiosity.

TYPE Y: This person is in many respects like Type X noted above. He is concerned with books and the pursuit of knowledge, but is also the kind of person who does not cut himself off from the more social phases of campus life. He is interested in getting good grades and usually tries to maintain a fairly high grade-point-average. He is the kind of person who will work with student government, the campus U.N. and activities of this type. He is the kind of person who feels that the social side of college life is not the most important but is certainly significant for his general development.

TYPE Z: This is the kind of person who is very much concerned with the social phases of college life. He identifies closely with the college and tries to attend as many of the campus social and athletic events as possible. This person may be interested in intellectual kinds of things but will, for the most part, find greater satisfaction in parties, dances, football games, etc. He is concerned about his education, but feels that the development of his social skills is certainly important. His college years are centered about fraternity and sorority activities even though he might not be a member. This person attempts to "make grades" but will rarely go out of his way to do extra or non-assigned readings.

Now that you have read each of the four descriptions, answer the following questions:

	Code	IBM No.
176. Which of the above (W,X,Y,Z) comes closest to describing the kind of person you consider yourself to be?	____	(37)
177. Which of the above is least descriptive of the kind of person you consider yourself to be?	____	(38)
178. Which of the above comes closest to describing the kind of person you were when you first came to college?	____	(39)
179. Which of the above types comes closest to describing the kind of person you would like to be if you had a choice?	____	(40)
180. Which of the above types comes closest to describing the typical MSU student?. . . .	____	(41)

* * * * * * * * *

181. What type of job, position, vocation, or profession, do you plan to engage in after graduation? e.g. medical doctor, elementary school teacher, civil engineer, etc. _____

_____

182 If this is any different from the plans you had when you entered as a freshman, answer questions 183 and 184. If NO, skip to question 185.

183. What job or profession or type of work did you plan to engage in when you were a freshman?

_____

184. Why did you change your plans? _____

Part XIII: Questions 185 - 187

The following questions are designed to learn how you feel about your future.

	Code	IBM No.
185. Regarding your immediate career plans upon graduation, which of the following is most likely to occur?	____	(42)

1. Working full-time at a type of job which I expect to be my long-run career field
2. Non-career military service
3. Working full-time at a civilian job which will not be my career field
4. Being a full-time housewife
5. Begin graduate study in a professional field (law, medicine, engineering, social work, etc.)
6. No idea
7. Other (specify)_____

186. Which of the following will most likely be your employer when you begin work in your anticipated career field? . . . . . ____ (43)

1. Private company with 100 or more employees
2. Private company with fewer than 100 employees
3. Family business
4. Self-employed
5. Research organization
6. College, University, or Junior College
7. School system (elementary or secondary)
8. Other educational institutions (Technical or Vocational school)
9. Federal Government
10. State or Local Government
11. Hospital, Church, Clinic, Welfare Organization, etc.
12. Other (specify)_____

187. Listed below are three different jobs. If you had your choice, which would you pick? . . . . . ____ (44)

1. A job which pays a moderate income but which you are sure of keeping
2. A job which pays a good income but which you had a 50-50 chance of losing
3. A job which pays extremely well if you make the grade, but which you lose almost everything if you don't make the grade

* * * * * * * * *

Part XIV: Questions 188 - 191

A variety of factors enter into a person's decision for choosing one job or career over another. The factors are as follows:

1. Making a lot of money
2. Opportunities to be original and creative
3. Opportunities to be helpful to others or useful to society
4. Avoiding a high pressure job which takes too much out of you
5. Living and working in a world of ideas
6. Freedom from supervision in my work
7. Opportunities for moderate but steady progress rather than the chance of extreme success or failure
8. Opportunities to exercise leadership
9. Remaining in the city or area in which I grew up
10. Opportunities to work with people rather than with things
11. None of the above (specify)_____

_____

188. Which of these factors do you now feel is important in choosing a career or job? (You may choose more than one) . . . . . _____ (45)

189. Which of these factors did you feel to be important when you were a freshman? (You may choose more than one) . . . . . _____ (46)

190. Of the 11 factors listed above, which ONE do you consider is the most important factor to be considered in picking a job or career? . . . . . ____ (47)

191. Which single factor do you think is most important to the average college student? (Choose only ONE). . . . . ____ (48)

* * * * * * * * *

Part XV: Questions 192 - 199

Please rate each of the following factors in terms of their effect or impact on your career plans or decisions during college according to the following code:

	Code
Very important.....	1
Fairly important.....	2
Unimportant.....	3
Never received any.....	4

	Code	IBM No.
192. Vocational or similar psychological tests.	____	(49)
193 Discussions with academic adviser.	____	(50)
194. Discussions with other faculty members.	____	(51)
195. Vocational/Guidance counsellor		(52)
196. Advice from parents.	____	(53)
197. Advice from family other than parents.	____	(54)
198. Peers.	____	(55)
199. Of the six factors listed above, which one do you consider played the most important part in your career decisions during college?	____	(56)

* * * * * * * *

Part XVI: Questions 200 - 202

200. If you had to register in the next election, how do you think you would register?. . . . . ____ (57)

1. Republican
2. Democrat
3. Socialist
4. Independent

201. The following activities cut across a number of specific jobs. Which ONE do you anticipate will be the most important part of your long-run career work? . . . ____ (58)

1. Teaching
2. Research
3. Administration
4. Service to patients and clients
5. None of these

202. Did you do all your college work at this school?. . . . . ____ (59)

1. YES, full-time
2. YES, part-time
3. NO, started here, attended another college, then returned
4. NO, started here, was out of college, then returned
5. NO, started here, transferred to another college or university

* * * * * * * *

Part XVII: Questions 203 - 212

For some people, the choice of a community depends upon such factors as cultural activities, type of schools, proximity to church and shopping, etc. If you did not have an opportunity to have ready access to the activities or resources listed below, how dissatisfied would you be with the community? Rate the degree of your dissatisfaction according to the following code:

	Code
Extremely dissatisfied.....	1
Quite dissatisfied.....	2
Somewhat dissatisfied.....	3
Wouldn't bother me.....	4

	Code	IBM No.
203. Opportunities to hear live performances of serious music .	____	(60)
204. Opportunities to see serious drama	____	(61)
205. Opportunities to see professional or college athletic events. . .	____	(62)
206. A good local art museum	____	(63)
207. An excellent local bookstore. .	____	(64)
208. Opportunities to engage in serious discussion of the basic problems and issues which confront our country	____	(65)
209. A theatre which shows foreign and art films	____	(66)
210. Opportunities for an active social life	____	(67)
211. A good local library.	____	(68)
212. Excellent public schools. . . .	____	(69)

* * * * * * * *

Part XVIII: Questions 213 - 216

213. Since you entered college, how have your political views changed?. . . . . ____ (70)

1. From liberal to more conservative
2. From conservative to more liberal
3. From liberal to more liberal
4. From conservative to more conservative
5. Not at all

214. If your political views have changed since you entered college, what factor/s have influenced you?. . . . . ____ (71)

1. Lecture and/or assigned course readings
2. Influence of friends
3. Personal contact with faculty members
4. Increased independent reading
5. Independence from parental ideas
6. Increased thinking about political questions

215. If your religious views have changed since you entered college what factor/s listed above have influenced you? . . . . . ____ (72)

216. If your moral or ethical views have changed since you entered college, what factor/s listed above have influenced you?. . . ____ (73)

Part XIX: Questions 1 - 30

Listed below is a series of questions or statements dealing with various aspects of your out-of-class activities while attending Michigan State University. We are primarily interested in the term (or terms) they applied to you, and the term (or terms) when changes, if any occurred. Please record your answers according to the following code:

	Code		Code
Before attending MSU	0	Junior, first term	7
Freshman, first term	1	Junior, second term	8
Freshman, second term	2	Junior, third term	9
Freshman, third term	3	Senior year	X
Sophomore, first term	4	Does not apply to me	Y
Sophomore, second term	5		
Sophomore, third term	6		

	Code	IBM No.		Code	IBM No.
1. Made first choice of major field..	____	(7)	10. Informally engaged or "pinned"...	____	(16)
2. Changed major field...............	____	(8)	11. Broke informal engagement.........	____	(17)
3. Pledged a fraternity or sorority..	____	(9)	12. Began "going steady"..............	____	(18)
4. Became an 'active' in a fraternity or sorority.........................	____	(10)	13. Stopped "going steady"............	____	(19)
5. Became engaged....................	____	(11)	14. Lived in the residence halls......	____	(20)
6. Broke my engagement...............	____	(12)	15. Lived in a fraternity or sorority house......................	____	(21)
7. Got married.......................	____	(13)	16. Lived in a co-op..................	____	(22)
8. Was divorced......................	____	(14)	17. Lived in married housing..........	____	(23)
9. Was separated from spouse.........	____	(15)	18. Lived in off-campus housing......	____	(24)

In this group of items, we are interested in the kinds of participation, the term of participation, and the position you may have held in the various extra-curricular activities while a student at M.S.U. Using the code above, indicate the term of your participation in the activities listed, by marking the code on space at right. In the space at the left, write in the specific position, responsibility, or function performed.

		Code	IBM No.
19. ________________	All University Student Government...............	____	(25)
20. ________________	Other governing groups (I.F.C, Pan Hel, M.H.A., W.I.C., I.C.C., P.I.C., C.R.L.U., S.O.C.).....	____	(26)
21. ________________	Residence Halls (excluding M.H.A.).............	____	(27)
22. ________________	Other living units (fraternities, sororities, co-ops, religious living units)................	____	(28)
23. ________________	Honorary Organizations.........................	____	(29)
24. ________________	Publications...................................	____	(30)
25. ________________	College or department clubs and organizations (i.e., Marketing Club, Botany Club, etc.)......	____	(31)
26. ________________	Class Councils (i.e., officer, J-Hop Committee, etc.)...	____	(32)
27. ________________	Varsity athletics..............................	____	(33)
28. ________________	Intramural athletics...........................	____	(34)
29. ________________	Religious clubs and organizations..............	____	(35)
30. ________________	Other clubs and organizations..................	____	(36)

****

Part XI: Questions 31 - 40

Many college students hold either part-time or full-time jobs to help support or finance their college education. We are interested in learning the extent of your employment while at M.S.U. Please exclude summer employment in answering this question. Use the following check list and place a check (✓) wherever appropriate.

	Amount of Time					
Term	Full-time	30-40 hours per week	20-30 hours per week	10-20 hours per week	Less than 10 hours per week	None
31. Freshman, first term						
32. Freshman, second term						
33. Freshman, third term						
34. Sophomore, first term						
35. Sophomore, second term						
36. Sophomore, third term						
37. Junior, first term						
38. Junior, second term						
39. Junior, third term						
40. Senior year						

Code | CSM No.

41. To what extent have you financed your own college education? . . . . . ____ (67)

1. Completely 2. Most of it (over 75%) 3. About one-half
4. Part of it (less than 25%) 5. None of it

42. How would you describe your parents' feelings about the importance of a college education? . . . . . ____ (68)

1. Very important 2. Important 3. Don't care
4. Opposed to it 5. Very opposed to it

43. (For men only) Extent of military service . . . . . ____ (69)

1. None 2. Six months or less 3. Twelve months or more

If you were married or became engaged since you entered as a freshman, please answer Question 45.

45. What do you think has happened to your views, opinions, and beliefs as a result of being married or engaged? . . . . . ____ (70)

1. My views and beliefs have stabilized.
2. My views and beliefs have been reinforced.
3. My views and beliefs have been altered or modified.
4. No change in my views and beliefs as a result of being married or engaged.

46. Compared to your first year of college which of the following would you say comes closest to your current religious attitude? . . . . . ____ (71)

1. I was never really a religious person and I feel the same way now.
2. I was a fairly religious person when I came to college and I feel the same way now.
3. I was much more religious when I came to college than I am now.
4. I am much more religious now than I was when I first came to college.

47. Compared to your first year of college which of the following would you say comes closest to your current political attitude? . . . . . ____ (72)

1. I was pretty much a political conservative and I still am.
2. I was pretty much a political liberal and I still am.
3. I am much more a political liberal than I was when I first came to college.
4. I am much more political conservative than I was when I first came to college.

APPENDIX "G"

INTERVIEWS WITH ACADEMIC PERSONNEL

In the fall of 1960, a group of instructors were selected at random and interviewed by members of the research staff. In addition, personnel in the Dean of Students office, the counseling center, and the Mental Hygiene Clinic were interviewed.

The purpose of these interviews was to obtain additional information about value conflicts of college students, students' concern for values, changes in values, and impact of certain experiences upon student attitudes and values. Following is a summary of the data gathered from these interviews.

Instructors

For the most part, instructors feel that changes in values and attitudes can eventually be traced back to the classroom where there is "learning of new things." Many of the instructors qualified the impact of the classroom by saying that this can only be accomplished by instructors who practice something other than the traditional lecture method in their teaching. In order for the instructor to be effective, he must involve the students in discussions in order that different values may be presented and then present logical, empirical evidence so that the student has an opportunity to examine his value system in the light of new facts. In addition, the instructor must develop a questioning on the part of the student so that the student will be motivated to examine his beliefs, ideals, and interests. They all agreed that little, if any change will come about if the student is only a passive participant.

Many of the instructors interviewed lamented the fact that very few students really challenge statements made in class--few also press further for increased understanding. It would appear that the student is content to "absorb the facts and then regurgitate them on the examination." A few of the more

aggressive students (to some instructors they are obnoxious) participate readily and freely. For the most part, however, students are content to sit back. Only concerted effort by an alert instructor will draw these students into discussions and only then will they have an opportunity to examine their beliefs.

Although the instructors readily admitted that the greatest change comes about in the classroom, they were also ready to concede that the most lively discussions take place in the dormitory or in "bull-sessions."

Needless to say, the views of the instructors and students interviewed are for the most part, diametrically opposed. Students feel that with very few exceptions, courses and instructors do not have any impact on their attitudes and values but that living with other people permits one to develop a better understanding of people with different views and beliefs. Although it would appear that the findings are in opposite directions, this is not necessarily the case. It would appear plausible that the spark might be ignited in the classroom (and, no doubt, in many cases is) and then flamed in the discussions that students hold in their living units.

Student Personnel Workers

Since there were differences among the male and female values, the sexes will be considered separately.

Men's Division. The persons interviewed stated that there is a marked difference in the value orientation among men living in the cooperative housing units, the residence halls, and the fraternities. At the same time, there is a great deal of heterogeneity among individuals living in a particular unit since the individual normally chooses the one composed of individuals with a personality pattern compatible with his.

Cheating on examinations does not appear to be a concern of the majority of students. This was also evident when students were interviewed.

These personnel workers mentioned that girls are very reluctant to participate in meetings where men are present. When they do participate, they seldom disagree for "fear of losing status in the male dominated group."

It was readily evident that those interviewed (and we might assume that they were a representative sample) had little to say about the value conflicts of males at Michigan State University. No doubt this was due to the philosophy that they are not equipped to handle such problems and promptly refer such cases to the Counseling Center.

Women's Division. In contrast to the Men's Division, the personnel interviewed had a great deal more to say about the values and value conflicts of women.

1. In mixed classes, the girls usually assume a subservient role so as not to give the impression that they are more intelligent. Quite often, girls who actively participate or who want to participate in class discussions will cease to do so or will become passive members because they feel that boys do not wish to date "brains" since brains and beauty do not mix. This might explain the comment of one instructor who said "I don't know what is wrong with this generation of college women....they just sit and smile at everything the fellows say in class, no matter how stupid it is". This subservient role might also explain the reticence of women to participate in Student Government meetings and activities.

2. It would appear that girls are more trustworthy than men. Girls seldom lock their doors or draw their shades. They are continually afraid of doing anything which might result in them being labeled as unfriendly or anti-social.

3. Females wilfully segregate themselves by choosing roommates and friends from the same racial and religious group. When asked whether this was

not also true for the males, the feeling of those interviewed was that it is more pronounced in women. After a roommate has been chosen and/or a peer group identified, a female will be less likely to risk change by moving out of the group. Parenthetically, this might explain, in part at least, why women tended to choose their roommate as being influential while this was not the case for males.

4. The majority of those interviewed felt that a person's value system has been firmly established by the time the student enters college. We can influence and strengthen convictions, they felt, but "we cannot set values.... all that we can do on campus is to make suggestions, encourage, and set examples."

5. Granted that in general, students are concerned about cheating but whether this is due to the students' deep feelings of moral right and wrong or their own immediate competitive situation that gives rise to this concern is not too clear.

In both the Men's and Women's Division, but more so in the former, there appeared to be a great deal of apathy when values and value conflicts were being discussed. Time after time, continual reference was made to the structure and organization of various student government bodies and activities and it gave the researchers the impression that the majority of these personnel workers are not too concerned about the problem unless it might result in a rash of misdemeanors that would come before them and the Dean of Students for disciplinary action.

Counseling Center and Mental Hygiene Clinic

The most fruitful data were collected from personnel in the Counseling Center and in the Mental Hygiene Clinic. Possibly this was so because of their immediate and personal interest in student behavior of which attitudes and values are an integral part. From these interviews, we might surmise the following:

1. In general, the greatest conflict in values comes from students who oppose their family's beliefs either by changing their own ideas or violating family belief systems with the result that a value conflict arises. The University psychiatrist stated that of the more severe cases he sees, the major value conflicts seem to center about parent-child conflicts in values. Quite often, a student coming from a very domineering home which might have displayed certain prejudices and stereotypic beliefs finds, that, after being at college, meeting different kinds of people, and developing a rational and objective process of thinking, what he has been subjected to at home is fallacious and unwarranted. This student then, faces the problem of either altering his beliefs with the risk that he will alienate his family or he will place his beliefs subordinate to those of his family. In any case, problems are sure to arise because of this value conflict.

2. As was evidenced in the interviews with faculty and students, the cheating that goes on is of no immediate concern provided it does not affect the student personally. One might conclude that if the normal curve was not employed in the grading of certain examinations, the majority of students would never be concerned about it for it is not a moral or ethical issue.

3. Because students question their own philosophy of life--what is right and what is wrong--it is only natural that in some individuals, value conflicts might arise. The majority of students, however, seem to possess a well-balanced personality and are able to resolve the conflicts that arise as a result of "new experiences and new things learned." "This learning is <u>not</u> restricted to classroom experiences but is anything different and unfamiliar to the student." The concensus of opinion of those interviewed was that the peer group and experiences outside the formal classroom environment have more impact upon students' values than what might be learned in a course; that what goes on in the "bull-

sessions" and discussions might well be related to some material discussed in the course but the impetus to change does not come about as a direct result of learning subject matter, per se.

4. The things most frequently discussed in counseling interviews (where values are concerned) are cheating, religious values, and relationships with the opposite sex. One counselor felt that most conflict areas are sexual in origin, the next most prevalent being religion. Although there was not unanimous agreement, the majority of those interviewed did believe this to be the case.

As mentioned earlier, value conflicts are prone to arise when there is disagreement between the student and his family. Quite often, these conflicts are brought about by new experiences and being away from home. The student is confronted with

> "I want to do something that is apart from my background teaching"
>
> "My boy friend or other friends (peer relationships) want me to do something that I actually feel I shouldn't do"
>
> "I do (or did) something that is apart from parent's teaching"
>
> "I now disagree with my parents"

The area of conflict lies within what the student really wants to do and what the student thinks is expected of him by his family, his peers, and his instructors.

A point raised in the discussion of sophomore year interviews which was supported by the interviews with the counselors and social workers related to the future plans of college students. It is amazing the number of juniors and even seniors who really do not know where they are going or what they want to do. Granted, some of them have grandiose aspirations that may never be realized, but many more are even unsure of their vocational choice. The psychiatrist mentioned that he sees many such students in the course of a year.

The interviews held with the faculty support the findings gathered from other sources in that the peer group relationships and student sub-culture appear to play a more prominent role in the life of the student than do courses and instructors*. This then suggests that college experiences are not necessarily unique but that the impact of college is just a "speeded-up" version of non-college experiences. This latter point was demonstrated by Plant (1962).

* This is especially so during the freshman and sophomore years.

APPENDIX "H"

EXAMPLES OF POSTCARDS AND LETTERS USED IN THE STUDY

Included in this section are the letters sent to seniors for the senior-year retesting session.* Letters of a similar nature were used for the sophomore and junior year retesting sessions. Since the freshman year retesting session took place during actual class time, no letters were used.

The following procedure was normally employed:

1. The student received a letter from the Dean of the University College in his sophomore year and from the Provost in his junior year requesting participation in the study. This letter outlined the aims of the study and contained a stamped, self-addressed postcard listing the testing schedule.

2. If the postcard was not returned within 96 hours, a postcard was sent to the student reminding him about the letter that he had been sent previously.

3. If there was still no reply after 72 hours, a follow-up letter was mailed to the student with another self-addressed postcard.

4. If there was no reply to the follow-up letter, the student was phoned by either the project director or the research associate.

5. As soon as the student's postcard was received, a reminder postcard was filled out and mailed to him 72 hours before the testing session he indicated he would attend.

6. After the regular testing sessions were over, a second follow-up letter was sent to those students who still did not participate stating that a special "make-up" session was being held.

* All seniors were personally contacted by the project director during registration.

MICHIGAN STATE UNIVERSITY EAST LANSING

OFFICE OF THE PRESIDENT • JOHN A. HANNAH

March 2, 1962

INTRODUCTORY LETTER SENT TO SENIORS*

For the past three and one-half years, Michigan State University has been studying the views and opinions of students who entered as freshmen in the fall of 1958. During this time those conducting the study have been able to gather data enabling them to assess something of the impact of college on student attitudes and values. It is the first large-scale study at Michigan State in which the same students have been studied for a period of four years.

Studies such as this give us a better understanding of students' social, mental, and emotional growth. We expect ultimately that the findings will be of use in curricular and instructional planning.

Last term you received a brochure describing some of the preliminary results of the study. To obtain a complete picture of the impact of college it is necessary that we obtain some terminal data early next term. Without this data, the picture being assembled will be incomplete.

We appreciate your assistance in the past and hope that you will be willing to set aside some time to participate in a retesting program. Six testing sessions have been arranged during spring term registration. After consulting the enclosed registration schedule, please check the time you would be willing to participate on the enclosed, stamped, self-addressed postcard.

Without your cooperation and assistance at this final phase of the study, most of its value will be lost. In contributing some of your time to this project, you will be contributing to increased understanding of the cumulative, long-term impact of the educational process. We feel that this study can be of real importance and value to Michigan State University and urge your cooperation.

Sincerely,

John A. Hannah

President

*These letters were personal and not mimeographed.

Name_____ Student No._____

Scheduled below are a number of times and places when you can give us the desired information. Please mark the day and time that is most convenient for you and return this card immediately.

Like this

PRINT YOUR NAME AND STUDENT NUMBER AT THE TOP

Time, Room, Building	Mon. May 11	Tue. May 12	Wed. May 13	Thu. May 14	Fri. May 15
8-10 AM Rm.34, B-2*					
10-12 AM Rm.32, B-2*					
12-2 PM Rm.20, B-1*					
2-4 PM Rm.16, B-1*					
7-9 PM Rm.213, Berkey					

*Temporary building, South Campus

O-2308

JUST A REMINDER

The postcard that you received earlier indicated that it would be most convenient for you to meet with us on

_____, May____, 1959 from _____ in _____

This is a reminder of date, place, and time. Please put it in a conspicuous place.

(If you now find that this time is extremely inconvenient for you, please phone University extension 3543 immediately to arrange for another time.)

Thank you so very much for your cooperation.

Yours very truly,

Irvin J. Lehmann

Irvin J. Lehmann
Research Associate

O-2316

A few days ago you received a letter from Provost Miller requesting your cooperation in a study conducted at Michigan State. Since we have not heard from you, we are assuming that you forgot to return the postcard enclosed in the letter.

Will you please return the postcard sent to you earlier so that we will know when it is most convenient for you to give us the desired information. If you are having trouble fitting the suggested times into your schedule, or if you have lost your postcard, please phone us and let us help you.(Ext. 3543).

Please return your postcard today.

Irvin J. Lehmann

Irvin J. Lehmann
Research Associate

First follow-up letter sent to seniors who did not respond to President Hannah's letter.

MICHIGAN STATE UNIVERSITY EAST LANSING

OFFICE OF INSTITUTIONAL RESEARCH

March 21, 1962

By this time, you have been reminded -- perhaps to the point of annoyance-- that since you entered Michigan State University as a freshman in the Fall of 1958, you as well as 2,745 of your fellow students have been part of a large scale study being supported by the U.S. Office of Education. This study, which is longitudinal in nature, has covered the four years while you have been a student at Michigan State. We have gathered a variety of data but require some additional information in order to complete the research. Although you may feel that your responses will not be missed, you can readily see that if many students feel the same way, the data we gather can be biased and open to misinterpretation. The study is of such importance that we must exert every effort to prevent this happening.

As President Hannah pointed out in his letter to you a few weeks back, "we expect ultimately that the findings will be of use in curricular and instructional planning". The research is designed to yield important information on the impact of college experiences on the attitudes, values, and critical thought processes of students. We realize that the two and one-half hours of your time which we have requested is something of an imposition at this busy period in your college years, but we believe, that after reflection, you will agree with us that it will be time well spent because of the contribution it will make toward better understanding of higher education.

You may recall that you can provide us with this needed information at any one of six testing sessions that we have set up for your convenience during spring term registration. We have set up these sessions at this time so that it will interfere as little as possible with classes, assignments, and job interviews that you will be having during the term. You will be contacted further during your registration to assist you should you be having difficulty fitting these times into your schedule.

Sincerely,

Paul L. Dressel

Paul L. Dressel
Director

Letter sent to seniors who responded to first letter but who said they could not be present at any of the scheduled testing sessions

MICHIGAN STATE UNIVERSITY EAST LANSING

OFFICE OF INSTITUTIONAL RESEARCH

Letter sent to seniors who responded to first letter but who said they could not be present at any of the scheduled testing sessions.

March 27, 1962

Miss
325 Grove Street
East Lansing, Michigan

Dear Miss

By this time, you have been reminded--perhaps to the point of annoyance--that since you entered Michigan State University in the Fall of 1958, you as well as 2,745 of your fellow students have been part of a large scale study designed to study the changes in views and opinions of students as they move through college.

I would like to take this opportunity to thank you for your courtesy and consideration in returning your postcard to us, notifying us of your inability to meet at any of the scheduled testing sessions.

Inasmuch as the overall success of the study depends upon the fullest cooperation of students in our study, you can see that we are anxious to obtain your views and opinions. For this reason, we are setting up a special "make-up" testing session to be held in

ROOM C-109 ANTHONY AUDITORIUM

WEDNESDAY, APRIL 4, 1962

7:00 P.M. SHARP

I sincerely hope that you will exert every effort to be present at this time. However, if this time is still inconvenient, would you please phone me at 355-2177 or drop into Room 1, Eustace Hall and we will arrange for a time that is most convenient for you.

Sincerely,

Irvin J. Lehmann
Project Director

IJL:cs

Letter sent to seniors who made appointment for testing during registration but didn't show up.

MICHIGAN STATE UNIVERSITY EAST LANSING

OFFICE OF INSTITUTIONAL RESEARCH

April 2, 1962

Dear MSU Attitude and Value Survey Participant:

You indicated earlier either by postcard and/or personal contact at registration that you would participate in the survey of college students' attitudes and values at one of the six testing sessions held during registration last week. No doubt, because of some unforseen circumstance, you could not be present at the session you originally selected.

Inasmuch as the overall success of the study depends upon the fullest cooperation of all students who entered Michigan State University as freshmen in the Fall of 1958, you can see that we are eager to obtain your views and opinions. For this reason, we are setting up a special "make-up" session to be held

ROOM C-109 ANTHONY AUDITORIUM

WEDNESDAY, APRIL 4, 1962

7:00 P.M. SHARP

I sincerely hope that you will exert every effort to be present at this session. However, if this date or time conflicts with classes or previous commitments, would you please call me at 355-2177 or 355-1912 immediately or drop into Room 1, Eustace Hall and we will arrange for a time that is more convenient for you.

Sincerely,

Irvin J. Lehmann

Irvin J. Lehmann
Project Director

Letter sent to students who made an appointment but did not appear at that particular testing session.

MICHIGAN STATE UNIVERSITY EAST LANSING

OFFICE OF CONTINUING RESEARCH

April 9, 1962

Dear Mr.

I am assuming that because of some unforeseen circumstances, you could not be present either at one of the sessions held during Spring Term registration or at the "make-up" session last Wednesday night, even though you indicated at an earlier time that you would be present.

Inasmuch as the overall success of this study depends upon the fullest cooperation of each and every student in the study, you can see why we are so eager and determined to obtain your views and opinions. For this reason, we are setting up another "make-up" session to be held

THURSDAY, APRIL 12, 1962

ROOM C-109 ANTHONY AUDITORIUM

7:00 P.M. SHARP

I urge you to exert every effort to be present. As we have indicated to you earlier, the average student completes the materials in two and one-half hours or less.

If you still have difficulties, please call me at 355-2177 or drop into my office in Room 1, Eustace Hall.

Sincerely,

Irvin J. Lehmann

Irvin J. Lehmann
Project Director

IJL:cs

Letter sent to students who indicated their willingness to participate but never appeared at any of the testing sessions.

MICHIGAN STATE UNIVERSITY EAST LANSING

OFFICE OF INSTITUTIONAL RESEARCH

April 13, 1962

Dear MSU Attitude and Value Survey Participant:

Since we did not hear to the contrary, we assumed that you would be present at the "make-up" session which was held in Anthony Auditorium last night. However, the fact that you did not appear suggests that we were wrong in this assumption.

Inasmuch as you have previously indicated a willingness to participate in this study, it would appear that some of the previous sessions were not convenient for you. We hope that you will be able to be present at another session next Tuesday. We realize that as the term progresses, you will become more involved in classwork and extra-curricular activities. We urge you, therefore, to take time to participate early in the term. Our next session will be:

****

TUESDAY, APRIL 17, 1962

ROOM 216 BERKEY HALL

7:00 P.M. SHARP

****

If, once again, this time is not convenient, you may come in at any time from 8-5 to Room 1 in the basement of Eustace Hall (old Basic College Building) and complete the materials there. If the time factor is a problem, you may even do part at one time and part a day or two later.

Please let me know what your plans are by dropping me a note, coming to Eustace Hall, or calling me at 355-2177 or 355-1912 or 332-4079 (home).

I look forward to your reply.

Sincerely,

Irvin J. Lehmann

Irvin J. Lehmann
Project Director

dnb

Letter sent to students who didn't respond after (1) Hannah's letter (2) 1st reminder postcard (3) Dressel's letter and were not contacted at registration.

MICHIGAN STATE UNIVERSITY EAST LANSING

OFFICE OF INSTITUTIONAL RESEARCH

April 30, 1962

Dear M.S.U. Attitude and Value Survey Participant:

About six weeks ago, you may recall receiving a letter from President Hannah requesting your cooperation in a study of college students' attitudes, values, and opinions. When you did not return the postcard enclosed in that letter you were sent another letter stating that you would be contacted at registration and arrangements would be made at that time to find a time that would be most convenient for you. Since we did not contact you at registration, and, since we did not hear from you any further, we felt that we should contact you once again.

Inasmuch as the overall success of the study depends upon the fullest cooperation of each and every student in the study, you can see why we are so anxious to obtain your views and opinions. As President Hannah stated in his letter of March 2 to you, "Without your cooperation and assistance at this final phase of the study, most of its value will be lost. In contributing some of your time to this project, you will be contributing to increased understanding of the cumulative, long-term impact of the educational process. We feel that this study can be of real importance to Michigan State University and urge your cooperation."

I personally urge you to exert every effort to participate. As we have indicated to you earlier, the average student completes the materials in two and one-half hours or less. For your convenience, we have set up a number of different times when you could provide us with the information needed. Please check the time that is most convenient for you. If scheduling is a problem, you can do part one day and part a day or two later.

I look forward to your favorable reply.

Cordially,

Irvin J. Lehmann
Project Director

I would be willing to participate in the study on

MONDAY, MAY 7	_____ 8-11 AM	_____ 9-12 AM	_____ 1-4 PM	_____ 2-5 PM
TUESDAY, MAY 8	_____ 8-11 AM	_____ 9-12 AM	_____ 1-4 PM	_____ 2-5 PM
WEDNESDAY, MAY 9	_____ 8-11 AM	_____ 9-12 AM	_____ 1-4 PM	_____ 2-5 PM
SATURDAY, MAY 12	_____ 1-4 PM			

P.S. Please return this letter in the stamped, self-addressed envelope which is enclosed. You will be notified where the sessions are to be held.

APPENDIX "I"

Interrelations of Critical Thinking, Attitudes, Values, and Some Selected Cognitive Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Inventory of Beliefs		27	-[illegible]	-[illegible]	11	-13	-[illegible]	[illegible]	-[illegible]	11	-[illegible]	-[illegible]	[illegible]	[illegible]	24	13	[illegible]
2. Critical Thinking	21		[illegible]	-[illegible]	[illegible]	-[illegible]	-[illegible]	[illegible]	-[illegible]	[illegible]	-[illegible]	-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3. [illegible] - Traditional Score	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	-[illegible]	-[illegible]	-[illegible]	-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4. [illegible] - Future Time	-[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	-[illegible]	-[illegible]	-[illegible]	-[illegible]	[illegible]	-[illegible]	-[illegible]	-[illegible]	[illegible]	-[illegible]
5. [illegible] - Individualism	11	11	[illegible]	[illegible]		[illegible]	[illegible]	-[illegible]	-[illegible]	-[illegible]	-[illegible]	-[illegible]	[illegible]	[illegible]	17	11	[illegible]
6. [illegible] - Puritan Morality	-[illegible]	-[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	-[illegible]	-[illegible]	-[illegible]	-[illegible]	[illegible]	-[illegible]	-[illegible]	-[illegible]	[illegible]	-[illegible]
7. [illegible] - Work Success	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		-[illegible]	-[illegible]	-[illegible]	-[illegible]	[illegible]	-[illegible]	-[illegible]	-[illegible]	[illegible]	-[illegible]
8. [illegible] - Sociability	[illegible]	[illegible]	-[illegible]	-[illegible]	-[illegible]	-[illegible]	-[illegible]		[illegible]	[illegible]	[illegible]	-[illegible]	[illegible]	[illegible]	[illegible]	-[illegible]	[illegible]
9. [illegible] - Conformity	-[illegible]	-[illegible]	-[illegible]	-[illegible]	-[illegible]	-[illegible]	-[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	-[illegible]	-[illegible]	-[illegible]	-[illegible]	-[illegible]
10. [illegible] - Relativism	[illegible]	-[illegible]	-[illegible]	-[illegible]	-[illegible]	-[illegible]	-[illegible]	[illegible]	[illegible]		[illegible]	-[illegible]	[illegible]	[illegible]	[illegible]	-[illegible]	[illegible]
11. [illegible] - Present Time	-[illegible]	-[illegible]	-[illegible]	-[illegible]	-[illegible]	-[illegible]	-[illegible]	[illegible]	[illegible]	[illegible]		-[illegible]	-[illegible]	-[illegible]	-[illegible]	-[illegible]	-[illegible]
12. [illegible]'s Dogmatism Scale	-[illegible]	-[illegible]	[illegible]	[illegible]	-[illegible]	[illegible]	[illegible]	-[illegible]	[illegible]	-[illegible]	-[illegible]		-[illegible]	-[illegible]	-[illegible]	-[illegible]	-[illegible]
13. [illegible] Reading	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-[illegible]	[illegible]	-[illegible]	-[illegible]	[illegible]	-[illegible]	-[illegible]		[illegible]	[illegible]	[illegible]	[illegible]
14. [illegible] - Verbal	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-[illegible]	-[illegible]	-[illegible]	-[illegible]	[illegible]	-[illegible]	-[illegible]	[illegible]		[illegible]	[illegible]	[illegible]
15. [illegible] - Informative	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-[illegible]	[illegible]	[illegible]	-[illegible]	[illegible]	-[illegible]	-[illegible]	[illegible]	[illegible]		[illegible]	[illegible]
16. [illegible] - Numerical	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-[illegible]	[illegible]	[illegible]	-[illegible]	-[illegible]	[illegible]	-[illegible]	[illegible]	[illegible]	[illegible]		[illegible]
17. [illegible] - Total Score	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-[illegible]	[illegible]	-[illegible]	-[illegible]	[illegible]	-[illegible]	-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	

Note -- Females(N=[illegible]) above the diagonal; Males(N=[illegible]) below the diagonal.
For N=1,000 a correlation of .06 is significant at the .05 level, of .08 at the .01 level.

01. 8/30 97	-.04	-.03	-.03	-.04	-.08	-.08	.07	.01	.00	.03	-.01	-.07	-.08	-.03	-.01	-.09	.09	.08	.41					
02. 8/30 BAL.	.16	.07	-.02	-.02	-.09	-.12	.12	.15	.25	.28	.24	.08	-.09	-.04	-.06	-.26	-.09	.25	.35	.23				
03. 8/30 CHA.	-.13	-.08	-.03	-.08	-.08	-.20	.05	.24	.21	.19	-.13	-.13	-.27	-.41	-.85	-.46	-.46	-.33		.24	.24			
04. 8/30 BOS.	.00	.24	-.41	-.25	-.09	-.25	.45	.25	.21	.28	.08	-.21	-.19	-.18	-.43	-.43	-.34		.28	.23	.28			
05. 8/30 NY	.41	.38	.24	.07	.09	.19	.26	.35	-.28	-.27	-.23	.20	.12	.43	.07	.24		-.18	-.48	-.47	-.23			
06. 8/30 PH	-.08	-.07	.41	.08	.19	.24	.35	-.28	-.08	-.12	-.14	-.08	.08	.08	.08	.26		.07	-.41	-.24	-.52			
07. 8/30 SYR.	.07	.13	.08	.19	.46	.08	.13	-.20	-.08	-.20	-.07	-.28	.08	.06	.01		.08	.15	-.18	-.23	-.26			
08. 8/30 BF	-.04	-.03	.04	.07	.13	.08	.21	-.07	-.03	-.07	-.03	.14				.28	.43	.08	-.34	-.48	-.41	-.53		
09. 8/30 DET	-.03	.41	.41	.24	.24	.46	-.07	-.03	-.03	-.07	-.07	.01		.15	.24	.08	.13	-.12	-.27	-.48	-.72			
10. 8/30 CLE	.28	.08	.06	.02	-.41	.02	.08	-.06	-.03	-.03	.08		.00	-.24	.13	-.08	.01	.03	-.19	.07	-.41			
11. 8/30 TOR	.24	.28	.08	-.03	-.03	.28	.20	-.01	.13	.23	-.03		.28	-.07	-.11	.19	-.19	-.02	-.08	-.11	.24	-.02		
12. 8/30 MIL	-.08	.08	-.03	-.03	-.08	-.08	.08	.08	.08		-.03	-.03	-.03	-.03	-.03	-.03	-.03	-.03	-.03	-.03	-.03	-.03	-.03	
13. 8/30 BAL.	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03		.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
14. 8/30 CHA.	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03		.03	.03	.03	.03	.03	.03	.03	.03	.03	.03
15. 8/30 BOS.	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03		.03	.03	.03	.03	.03	.03	.03	.03	.03
16. 8/30 NY	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03		.03	.03	.03	.03	.03	.03	.03	.03
17. 8/30 PH	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03		.03	.03	.03	.03	.03	.03	.03
18. 8/30 SYR.	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03		.03	.03	.03	.03	.03	.03
19. 8/30 BF	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03		.03	.03	.03	.03	.03
20. 8/30 DET	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03		.03	.03	.03	.03
21. 8/30 CLE	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03		.03	.03	.03
22. 8/30 TOR	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03		.03	.03
23. 8/30 MIL	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03		.03

ESTIMATE MODIFIED JANUARY-APRIL 1955 FORMULA

J. ZIEGART

APPENDIX "G"

PEARSON-SPEARMAN TEST INTERCORRELATION MATRIX

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
1.CTC		08	-08	14	01	05	15	-08	-02	-10	-05	70	-01	-08	16	-14	04	00	-20	13	00	00	-01	01	13	-08	-02	00	-01	11	-09	-30
2.CRT	01		03	08	03	03	-03	-08	-09	-07	13	-01	73	03	00	00	00	-08	-07	-03	-01	-07	00	02	00	03	00	-08	-03	-03	-03	18
3.CT	-09	73		00	08	08	-08	-08	-07	-04	13	-03	01	04	00	00	00	-08	-10	-08	-07	-07	03	02	00	04	03	-08	-08	-08	-08	16
4.Sad.	07	08	03		00	08	-05	-05	-05	-05	00	00	03	03	00	00	00	-05	-05	-04	-04	00	00	01	07	13	00	-03	-08	-08	-03	11
5.CM	04	00	00	08		00	-05	-08	-08	-05	14	00	03	00	00	00	00	-08	-08	-03	-08	-04	01	00	16	03	10	-01	-08	-03	-03	12
6.MP	01	00	00	00	00		-08	-08	-08	-04	-00	-01	07	04	00	00	00	-08	-08	-03	-03	-03	00	00	04	04	00	-04	-08	-08	-08	11
7.Ann.	-03	-07	-03	-08	-03	-08		07	00	-03	-10	10	-08	-08	-08	-08	-08	03	13	00	00	13	-08	-08	-17	-03	-08	03	13	04	04	-03
8.Con.	-08	-08	-03	-03	-08	-03	00		00	00	-07	-03	-03	-07	-07	00	07	00	07	00	07	-03	-08	-03	-08	-08	00	07	07	00	-03	-02
9.Ach.	00	-08	-07	-08	-07	-03	00	00		07	-07	00	-08	-07	-07	-03	-08	00	00	00	07	-03	-08	-03	-03	-03	-03	00	00	01	00	-07
10.PE	-07	-03	-03	-08	-08	-08	-08	00	00		-08	-08	-08	-08	-08	-08	00	00	00	00	-03	-03	-08	-08	-08	-08	00	00	00	00	-13
11.Ach	-07	03	-08	-08	03	-08	-07	03	-07	-03		-03	00	00	00	03	-08	-08	-08	-08	-08	14	07	00	03	03	-08	-08	-07	-08	00	
12.CS	03	00	-03	07	00	00	-08	-08	-03	-08	-08		-08	-08	03	-03	00	-03	-03	03	03	03	-08	-08	00	-03	-03	-08	-08	00	-03	-08
13.SFS	03	00	00	00	00	00	-08	-08	-08	-07	03	07		00	03	03	-03	-08	-08	-03	-03	03	00	00	00	00	01	-04	-03	-08	-08	00
14.PS	00	00	00	00	00	00	-08	-08	-08	-08	03	00	00		03	00	03	03	03	03	03	00	00	00	00	00	-08	-08	-08	-03	00	00
15.Int.	08	00	00	00	07	07	-08	-08	-08	-08	03	00	00	00		00	00	00	00	00	00	00	00	00	07	13	00	-08	-08	-08	-01	13
16.SE	-03	00	00	03	03	03	-08	-08	-08	-08	00	-08	03	00	00		00	-08	-08	-08	-08	00	00	00	00	00	-08	-08	-08	-08	-07	00
17.AM	00	00	00	00	00	03	-08	-08	-08	-08	00	00	00	00	00	00		-08	-08	-08	-08	00	00	00	00	00	-08	-08	-08	-01	-08	00
18.Ann.	-08	-07	-08	-03	-07	-07	03	03	00	07	-03	-03	-08	-08	-03	-03	-08		00	03	00	-03	-08	-08	-03	-07	-03	03	00	01	07	-04
19.Con.	-08	-03	-08	-03	-08	-07	00	00	03	03	07	-03	-08	-08	-03	-08	-08	00		00	00	-03	-08	-08	-03	-03	-03	10	00	00	07	-14
20.Ach.	03	-08	-03	-08	-07	-07	00	00	07	00	13	-03	-08	-08	-08	-08	-08	10	10		00	10	-07	-08	-03	-03	-07	00	00	00	00	-22
21.PP	-08	-08	-08	-08	-08	-08	03	03	07	00	-03	03	-08	-08	-03	-08	-08	00	07	03		-03	-08	-03	-07	-03	-03	00	00	00	01	-03
22.CT	-08	03	03	-03	03	03	-03	03	03	00	-03	03	-08	-08	-08	-08	-08	-08	-08	-08	-08		03	03	-03	-03	-03	-03	-03	-03	-03	13
23.Ann.	-08	-08	-03	-03	-03	-03	00	00	00	00	-03	-03	-08	-08	-08	-08	-08	-08	-08	-08	-08	-03		03	03	-03	-03	-03	-03	-03	-03	-03
24.Con.	-08	-08	-03	-03	-03	-03	00	00	00	00	-03	00	-08	-08	-08	-08	-08	-08	-08	-08	-08	-03	-03		03	03	-03	-03	-03	-03	-03	-03
25.Ach.	-08	-08	-03	-03	-03	-03	00	00	00	00	-03	00	-08	-08	-08	-08	-08	-08	-08	-08	-08	-03	-03	-03		03	-03	-03	-03	-03	-03	-03
26.CS	-08	-03	-08	-08	-07	-03	03	00	00	00	-08	00	-08	-08	-08	-08	-08	00	00	03	03	-03	-08	-08	-03		-03	-03	-03	-03	-03	-03
27.Int.	-13	10	12	-07	13	00	-08	-08	-03	-08	00	-03	07	00	03	03	-08	00	-03	-07	-03	10	10	-03	10	03	-04	00	-10	-13		

Note: Pearson(N=4077) above diagonal, Spearman(N=1287) below diagonal.
Decimals omitted.

$$r\left[\sqrt{N}\ 2.58\right] = .05$$

Code:

CTC= Test of Critical Thinking, Form G.
CRT= Inventory of Beliefs, Form I.
DVI= Differential Values Inventory - Traditional Values.
G.C= Dogmatism Scale.
FT= Fatalistic orientation
Conf= Individualism
PD= Further Security
WA= Work-anxious ethic
Ques= Sociability
Conv= Conformity
Rel= Religiosity
FD= Present-Time orientation

} Subscores of DVI

PEARSONS-JENSEN CORR CROSSCORRELATION MATRIX

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
1.P'DECB		00	00	-00	11	-00	00	01	-19	18	-17	13	03	-09	-06	-00	-14	-01	05	00	16	03	09	34	-00	-05	00	-18	-01	04	-01	30	07
2.P'DECT	00		00	00	14	-00	-10	00	-06	-01	-06	21	73	03	-09	17	-00	01	-01	-03	34	-00	34	73	06	02	19	-03	03	-08	-11	00	-02
3.P'DEPT	-18	-00		72	03	72	73	-00	-71	-73	-73	-69	08	00	02	04	13	02	-07	-08	-02	-50	01	03	69	33	30	43	24	-34	-40	-36	-33
4.P'DEPT	-08	-00	77		00	08	02	-00	-03	-03	-03	-13	00	03	02	00	38	37	-08	-03	-18	-03	00	04	30	38	17	37	21	-23	-24	-33	-30
5.P'DECL	03	08	07	00		03	00	44	-44	-27	-08	08	08	04	01	37	16	-03	-08	-01	-37	13	00	30	00	16	43	18	30	-13	-42	-13	-16
6.P'DEPM	-04	-10	00	00	00		00	-03	-08	-03	-08	-08	03	01	01	03	00	-06	-06	-01	-01	-07	01	01	16	38	64	00	-18	-27	-27	-18
7.P'DMEI	-10	-03	79	07	00	00		-00	-03	-08	-04	-04	01	04	00	03	10	10	-00	-00	16	-03	00	-04	00	38	07	22	42	-34	-30	-23	-27
8.P'DMEL	00	00	-03	-03	-03	-03	-08		10	00	00	-07	-08	-08	-03	-08	-03	-00	-03	-08	01	01	-03	00	-30	-24	-18	-30	-21	37	30	14	10
9.P'DMEW	03	-07	-73	-03	-08	-03	-03	06		06	00	-06	-03	-06	-03	-06	-00	-03	00	06	01	47	-13	00	-30	-18	-30	-23	-31	17	53	17	23
10.P'DMEW	00	00	-77	-00	-00	-00	-03	03	00		00	13	-08	-03	-07	-06	-00	-07	01	07	30	30	11	-00	-03	-33	-19	-03	32	34	34	46	22
11.P'DMEX	10	03	-73	-06	-07	-06	-03	03	07	06		-01	-09	-03	-03	-08	-08	-07	00	00	30	30	03	-03	-30	-19	-18	-30	-23	18	30	31	27
12.P'DEYE	71	00	-13	-00	00	-00	-07	13	-04	00	00		07	-17	-13	-03	-23	-00	13	03	-01	00	73	34	-09	-04	13	-17	-08	00	-13	30	03
13.P'DEYT	00	78	-13	-13	07	-17	-13	13	-06	13	11	00		00	-03	18	07	07	-11	-13	-00	-06	30	71	07	03	01	01	02	-07	-12	-03	00
14.P'DEYU	-14	01	00	00	00	03	00	-03	-03	-03	-03	-14	-00		07	00	00	73	-73	-71	-73	-73	-08	04	32	30	31	43	60	-33	-36	-42	-30
15.P'DEYV	-03	-03	03	00	03	03	00	-03	-03	-03	-00	-00	-00	-00		00	39	03	-00	-04	-08	-03	-00	-03	00	49	15	34	35	-33	-32	-43	36
16.P'DEYX	00	14	00	01	00	18	00	-03	-00	-00	-00	-03	-03	00	11	03		03	-07	-03	-03	10	10	30	15	32	33	23	-30	-42	-13	-28
17.P'DEYZ	-01	-03	00	00	00	03	00	-01	-00	-00	-03	-18	07	03	00		00	-01	-00	-03	-01	03	30	14	32	48	00	-10	-22	-30	-21	
18.P'DEZ0	-00	03	04	00	04	10	07	-07	-44	-03	-00	-03	08	74	42	03	02		-03	-07	-04	-07	-00	21	23	00	17	41	-23	-19	-38	-22	
19.P'DEZ1	10	00	-43	-00	-00	-03	-03	00	08	00	00	11	14	-73	-00	-47	-43	-03		03	34	37	00	-02	-31	-30	-34	-30	-31	30	31	34	28
20.P'DEZ2	-01	-10	-07	-00	-08	-03	-07	31	08	03	00	-03	-03	-13	-74	-03	-08	-41	-02	36		61	-03	-07	-40	-03	-38	-30	-32	35	49	16	39
21.P'DEZ3	14	01	-07	-00	-00	-03	-00	13	00	00	00	00	00	00	-08	-08	-07	-07	03	31	61	33	00	04	-27	-31	-08	-41	-38	31	08	34	21
22.P'DEZ4	00	00	-01	-03	-00	-03	-03	03	00	00	01	00	03	-72	-04	-03	13	07	43	36		-00	-00	-08	-30	-23	-35	-30	-38	18	39	34	33
23.P'DEZT	00	00	-01	-03	-00	-03	-03	03	00	00	01	00	00	-03	-03	-03	-03	-03	-03	-03	-01	01	-10	-04	03	-07	-01	03	-00	-17	34		-08
24.P'DEZU	00	00	-13	-07	-01	-03	-08	13	-00	13	00	13	73	00	-01	-03	13	-03	-03	03	-03	00	11	00	18	00	03	-00	-17	-04		-02
25.P'DEZV	00	00	-07	-13	00	-11	-00	13	-00	13	00	03	73	00	03	03	03	03	44	-08	-00	-03	-00	08	04	73	78	-73	-71	-74		-78
26.P'DEZW	-00	11	01	03	03	03	00	-03	-03	-03	-03	00	00	00	03	03	03	44	-08	-00	-03	-03	08		09	48	00	-00	-46	-47		-41
27.P'DEZX	-00	00	00	07	00	03	00	-00	-08	-00	-00	-00	00	00	03	00	00	03	-01	-00	-07	-01	03	03		00	00	00	-48	-48	-33	-46	
28.P'DEZY	-01	03	07	00	03	03	00	-03	-07	-01	-14	03	14	03	00	03	00	00	-03	-07	-07	-00	03	-08	03	31	17	30	30	-43	-43	-47	-40
29.P'DEZZ	-17	00	01	00	01	00	00	-17	-07	-00	-00	-14	-00	00	00	01	17	00	-00	-00	-03	-00	-00	07	00	30	30	15		-47	-04	-00	-44
30.P'DEZ8	-00	07	07	00	01	00	00	-00	-00	-00	-00	-00	00	07	00	01	17	00	-00	-00	-03	-00	-00	07	00	07	-47	-41	-30	-46		41	41	43
31.P'DEZ9	00	-10	-00	-00	-07	-10	-10	00	00	01	11	00	-00	-00	-00	-00	-00	-00	-00	00	00	00	11	-00	-00	-47	-47	-41	-30	-44	36		30	47
32.P'DEZA	-00	-01	-00	-00	-00	-00	-00	00	00	00	00	00	00	-00	-00	-00	-00	-00	00	00	00	00	-10	-10	-48	-00	-51	-00	-44	33	18		48
33.P'DEZB	00	00	-00	-00	-00	-00	-00	00	00	00	00	00	00	-00	-00	-00	-00	-00	00	00	00	03	-00	-00	-00	-44	-41	-43	-48	39	34	35	
34.P'DEZC	-00	-00	-00	-00	-00	-07	-00	00	00	00	00	-00	-00	-00	-00	-00	-00	-00	00	00	00	03	-00	-00	-00	-44	-41	-43	-48	39	34	35	

Note: Below (X = DEC) above diagonal; Decimal (X = DEC) below diagonal.
Decimals omitted.

Note: [illegible] = [illegible] Coupling; [illegible] = [illegible] Data Coupling;
[illegible] [illegible].

16. [illegible]																
15. [illegible]																
14. [illegible]																
13. [illegible]																
12. [illegible]																
11. [illegible]																
10. [illegible]																
9. [illegible]																
8. [illegible]																
7. [illegible]																
6. [illegible]																
5. [illegible]																
4. [illegible]																
3. [illegible]																
2. [illegible]																
1. [illegible]																
	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	

[illegible] [illegible] [illegible]

A. [illegible]